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The editors are indebted to the Australian National University for assistance in the production of this series.

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Copyedited by Joan Birnie
Maps drawn by Theo Baumann
Printed by ANU Printing Service
Bound by F & M Perfect Bookbinding

First Published 1994
Typeset by Anne Rees

This publication was made possible by an initial grant from the Hunter Douglas Fund. No royalties are paid on this or any other Pacific Linguistics publication.

ISSN 0078-7558 ISBN 0 85883 424 3
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INTRODUCTION

A symposium on 'Austronesian Terminologies: Continuity and Change' was held at the Australian National University, Canberra, from 18 to 21 October 1990. The symposium was one of a series associated with the Research School of Pacific Studies' Comparative Austronesian Project, based in the Department of Anthropology.

The theme of the symposium was the study of Austronesian etymologies, with particular reference to terminologies likely to elucidate the culture history of the Austronesian-speaking peoples. Twenty-two papers were presented, of which twenty-one appear, in revised form, in this volume. The other paper, 'Birth-order terms in the Austronesian languages of Papua New Guinea', by Susanne Holzknecht, has already been published in *The language game: papers in memory of Donald C. Laycock*, T. Dutton, M. Ross and D. Tryon, eds *Pacific Linguistics* C-110, pp.171-177.

Fragmentary though the coverage may be, in terms of domains of vocabulary, subgroups, regions and historical periods, we hope the symposium will draw attention to what has been done so far and what remains to be done in a field of Austronesian comparative linguistics that is of particular interest to other historical disciplines.

We wish to thank the authors and all others who contributed to the success of the symposium, especially Lorraine O'Brien, who bore the brunt of the organising, Joan Birnie, who copyedited the volume and Anne Rees, who did the formatting and typesetting.

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1. INTRODUCTION

In this paper I investigate the origin of the Malay words *bara* 'thing', *binata* 'animal' and *ora* 'person'. I also propose etymologies for some other historically and semantically related words viz. *bara apa* 'how much/many', *ayam* 'chicken' and *main* 'to play'.

*Bara* derives from Proto Malayic (PM) *bara?, a 'marker of uncertainty and indefiniteness of object or number' + *g (a ligature, see below). *Bara apa* derives from PM *bara? + *apa 'what?'. I reconstruct Proto Malayo-Polynesian (PMP) *bara, a 'marker of uncertainty and indefiniteness of object or number' in place of Dempwolff's (1938:23) PMP *bara 'goods' and Blust's (1980a:48) Proto Western Malayo-Polynesian (PWMP)2 doublets *bara/bara 'marker of uncertainty, conditionality or hope'.

*Binata* must be a relatively recent innovation in Malay. It is phonotactically highly irregular, and it cannot be reconstructed for either PMP or PM. But, on the other hand, it is possible to reconstruct PM *hayam 'domestic animal (including pig, dog, fowl); plaything'. A pre-PM *q-um-ayam 'to play' developed into the phonemically reduced and lexicalised Malay *main*.

Dempwolff's (1938:160) PMP *ura 'human being' and Blust's (1970:125) PMP *(CiT)ura 'in-law' must be related forms. I reanalyse them as PMP *ura with a referential derivation *uura, and I tentatively gloss them 'outsider; affine; friend'.

Finally, my analysis of *bara* sheds some new light on the history of the ligature *g which among other languages occurs in Philippine languages and in Old Javanese. It was a linker between the parts of a noun phrase, and also between digits and higher order numerals in numeral compounds. The modern West Indonesian languages still reflect *g in numeral compounds, but they have lost it as a ligature in noun phrases. *g was lost in Malay, although it must still have been present (in numeral compounds) in PM.

---

1 I am grateful to Jim Fox, Chuck Grimes, Laurie Reid and David Zorc for their helpful suggestions and critical reading of earlier versions of this paper. Any errors and omissions left in it are due to my own inadvertency.

2 In Blust's classification of Austronesian languages, PWMP is a primary branch of Malayo-Polynesian and it contains all Malayo-Polynesian languages of the Philippines, Malaysia and West Indonesia, the Chamic languages, Malagasy, and (in Micronesia) Chamorro and Palauan. West Indonesia includes here Bali, Lombok and the western half of Sumbawa and Sulawesi together with the Banggai archipelago in the east and Muna-Buton and the Tukangbesi archipelago in the south-east (Blust 1980a:12). PWMP is, however, not defined by strong linguistic criteria, and it is more of a residue category for Malayo-Polynesian languages that do not belong to Blust's Central or Eastern branches.
1.1 Barag ‘THING’

The Malay word barag has a wide variety of meanings. Wilkinson (1959) considers these meanings sufficiently contiguous to group them under the same dictionary entry, and he describes barag as:

thing; stuff; wares; goods; something; somehow; more or less; may it happen in some way. In various senses:

(i) baragJerman goods made in Germany
(iii) Barag-barag things of all sorts; impedimenta; the usual things. Bukan b[aran]-b[aran] orag not a man of the usual sort; no ordinary man;...
(iv) Barag dipaliharakan Allah daripada səgala marahaya may God protect her from all dangers;...

In other dictionaries the different meanings of barag are sometimes allotted to homonyms, cf. Echols and Shadily (1989), which distinguishes three homonyms with basically the following meanings:

barag1 1. goods, commodity; 2. article, object; 3. (Coll.) s.t. whose direct mention should be avoided (i.e. marijuana, genitals, etc.); 4. baggage, luggage
barag2 any; [barag] apa anything, whatever; [barag] bila whenever; [barag] di mana wherever, anywhere
barag3 more or less, approximately

It furthermore gives the following derivations:

barag-barag may it happen that, would that
barankali perhaps, maybe

For practical purposes the second arrangement seems more appropriate, but from a semantic viewpoint it is not hard to conceive that the several homonyms distinguished in Echols and Shadily derive from a single etymon.

I would like to show that (1) barag with its different meanings derives from a PMP etymon *baRa (denoting uncertainty and indefiniteness of object or number) + a fossilised ligature *-ŋ, and that (2) barag is historically related to the Malay quantifier bər/apa ‘how much/many?’, a lexeme which derives from *baRa + *apa ‘what? (interrogative pronoun)’.

The analysis of (Old Javanese and Malay) barəŋ as consisting of *bara + a ligature *-ŋ was first proposed by Kern (1918:172-173). On the basis of barag and corresponding forms other reconstructions have been made, which I am listing below.

The proposed relationship of barag to bərapa through PMP *baRa involves some problems which are dealt with in sections 1.2 to 1.5. For instance, is there other evidence for a ligature *-ŋ in the history of Malay which would support my explanation of the final nasal in barag? Is there additional evidence for a PMP *baRa denoting uncertainty and/or question? What are the arguments against earlier etymologies proposed for barag and bərapa?

---

3 Wilkinson defines bərapa as: ‘in some quantity; to some extent; how much (if pronounced interrogatively)’. 
1.2 EVIDENCE FOR AN ENCLITIC VELAR NASAL

1.2.1 EVIDENCE FOR AN ENCLITIC VELAR NASAL IN MALAY

None of the known varieties of Malay has a separate morpheme -ŋ, and this observation includes Classical Malay and the Old Malay of the seventh century inscriptions of South Sumatra. However, it seems that some forms of Malay exhibit a fossilised -ŋ. Standard Malay has a relative pronoun yaŋ which is generally assumed to have developed from the third person pronoun ia and a clitic element -ŋ. This -ŋ would be a cognate of the ‘linker’ or ‘ligature’ found in languages such as Old Javanese and Tagalog (see below). Yaŋ is not likely to be borrowed, as languages that had an influence on Malay do not have such a relative pronoun.

The velar nasal ligature -ŋ must be distinguished from a genitive linker. The latter derives from the Proto Austronesian (PAN) genitive marker *ni, but in the Austronesian daughter languages it may be reduced to an -N- which becomes homorganic with the following consonant (Blust 1974b:3ff.). This reduction also occurred in Malay and is witnessed by the third person possessive suffix -pa, which can be analysed as *ni + *ia ‘(third person pronoun)’. In Old Malay it is also still shown in -ŋku, the allomorph of the first person singular possessive suffix -ku when it follows a noun head ending in a vowel, for example:

-ŋku can be analysed as *ni + *ku, and it also occurs still in Brunei Malay (Nothofer 1991:153). In modern Malay this first person singular suffix lost the nasal and became -ku throughout.

Examples of *ni > -N- from Old Javanese:

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Modern Javanese has lost all reflexes of *ni except in -né, the third person genitive pronoun suffixed to nouns ending in a vowel.

In some Classical Malay texts dealing with Javanese tales of romance, kinship terms show an additional -ŋ instead of the final glottal stop or ə found in other Malay varieties, cf. bapaŋ ‘father’, kakaŋ ‘elder sibling’, cucuŋ ‘grandchild’, adiŋ ‘younger sibling’. Corresponding forms in Standard Malay are bapaŋ, kakaŋ, adiŋ and cucuŋ respectively. Comparable formations are found in contemporary Malay dialects which have undergone Javanese influence in the past such as Banjarese of South Kalimantan or the Besemah and Seraway dialects of South Sumatra (Adelaar 1992:119). As these varieties of Malay have been subject to Javanese influence in the past, their ending -ŋ in kinship terms must be the result of morphological borrowing from an archaic form of Javanese. This -ŋ may reflect an earlier *ni in the history of Javanese. It could have become part of the preceding noun through backformation when -ŋku fell in frequency of usage and its place was taken by -ku.

4 De Casparis (1956:33 [line 7]) translates this phrase as ‘my empire’.
1.2.2 EVIDENCE FOR AN ENCLITIC VELAR NASAL IN OTHER WEST AUSTRONESIAN LANGUAGES

The linker ɣ occurs rather frequently in Philippine languages, and Tagalog ɣ may stand as an example of these. It has an allomorph na occurring after consonants other than a glottal (-ʔ or -h), and it merges with final n to ɣ; ɣ links the different constituents of a noun phrase. Noun phrases consist of a noun and an adjunct, and adjuncts include (a) articles, (b) deictics, (c) interrogatives, (d) quantifiers / indefinites, (e) adjectives and (f) relative clauses (Foley 1976). Examples:

(a) a-ɣ bata?
(b) ito-ɣ bata?
(c) sa ali-ɣ parti?
(d) marami-ɣ bata?
   bahagi-ɣ lupa?
   ilap mansanas
   (< ilan ‘some’ + -ɣ)
apat na piso
dalawa-ɣ mansanas
(e) mataba-ɣ maruno-ɣ tao
(f) a-ɣ babae-ɣ nagbabasa?
   na-ɣ diyariyo

‘the child’
‘this child’
‘to which party?’
‘many children’
‘part of the land’ (Schachter & Otanes 1972)
‘a few apples’ (Schachter & Otanes 1972)
‘four pesos’
‘two apples’ (Schachter & Otanes 1972)
‘fat wise man’
‘the woman reading a newspaper’

However, the following examples (from Schachter & Otanes 1972, Chapters 3-4) show that the linker also occurs (a) in compounds consisting of two nouns, (b) in noun phrases consisting of two nouns in apposition, and (c) in numerals between a digit and higher order numbers. In the latter case the linker only occurs if the digit ends in ʔ or h, and it is assimilated to the following consonant before puʔ ‘ten’. Examples:

(a) laro-ɣ besbol
(b) si Pedro-ɣ maripisda?
(c) dalawa-ɣ puʔ
   tatlo-ɣ puʔ
   isa-ɣ daan

‘baseball game’
‘Pedro, the fisherman’
‘twenty’
‘thirty’
‘one hundred’

Correspondences with comparable functions and distributions of this Tagalog linker are well represented in the Central Philippine languages.5

Another language where ɣ is found is Old Javanese. Old Javanese ɣ is described as a definite article: it makes the following noun definite, unless this noun has already been made so by other elements in the noun phrase to which it belongs (Zoetmulder 1983:9). Examples:

ɣ kathâ
ɣ dâna\u0161aw\u0161a
‘the story’
‘the demons’

ɣ is often cliticised to a preceding word such as the demonstrative pronoun (i\u010di/i\u010de ‘this’, iku/i\u010dko ‘that’, ika/ikâ ‘yonder’), the emphatic particle ta, the connective particle ni or the preposition (ri) meaning ‘in, on, at; by; through; with’. It may also be used to introduce a subject, object or predicate (Zoetmulder 1983:137-142). Examples:

---

5 Zorc (1977:267) even reconstructs Proto Philippine *ga ~ *-ɣ, although the justification of his Proto Philippine language subgroup remains a problem (cf. Reid (1982) and later publications).
ika-ŋ râkšasa 'that demon, the demon'
warna ni-ŋ kuda 'the horse’s colour'
maŋrâŋo ta-ŋ dânawa 'the demons heard it'
lwah inaranan i-ŋ Sindhusâra 'a river which got the name S.'
ri-ŋ dlâha 'in the future'

ŋ is also cliticised to digits when these are used attributively, or when they occur as first constituent in a compound with larger numeral units. If the digit ends in a consonant, the allomorph -an applies, as with pat ‘four’ and nam ‘six’. Examples:

pat-aI) tahun 'four years'
four-aŋ year
wwalu-ŋ wiji
eight-ŋ item
rwa-ŋ puluh tunggal 'twenty-one'
two-ŋ ten one
rwa-ŋ iwu lima-ŋ atus 'two thousand five hundred'
two-ŋ thousand five-ŋ hundred

When numerals are used predicatively, they do not have -ŋ suffixed. For example:

lima kwêh nika-ŋ ratha 'there were five charts'
five number that-DEF chart (lit. the number of charts was five)

The indefinite quantifier pira ‘how much, how many; some’ also requires -ŋ when it is used attributively. Compare

pira-ŋ warsa kunâŋ lawas... '(now) after some years...'
some-ŋ year now long

with the following sentence, where pira is used predicatively:

pira ta lawas nira hana ı̯kâ... 'when they had been there for some time...'
some EMP long they be there

Modern Javanese has lost ŋ almost completely. It only appears as an enclitic with attributively used digits, or with digits used as the first constituent of a complex numeral, the second constituent of which is puluh ‘ten’, atus ‘hundred’ or ěwu ‘thousand’. It also appears with attributive pira ‘how much/many’. The allomorph -aI) only applies with pat ‘four’. Examples (from low Javanese):

ro, lora 'two'
pat ‘four’
talu ‘three’
pira ‘how much?’
ro-ŋ puluh ‘twenty’
pat-aI) puluh ‘forty’
talu-ŋ atus ‘two hundred’
talu-ŋ dina ‘three days’
pira-ŋ dina? ‘how many days?’

It has become fossilised in the preposition ı̯ and in the relative markers sì/ŋ (low register) and ı̯ka/ŋ (high register).

---

6 Wiji (lit. ‘seed’) is used as a numeral classifier.
7 Abbreviations used in examples are as follows: DEF – definite, EMP – emphatic, O – object, PREP – preposition.
Zoetmulder (1983:33) claims that *ipka/* developed from an earlier demonstrative pronoun *ikö + a definite article -ŋ, and he demonstrates this with the following Old Javanese sentence:

\[
\text{\underline{Tan mätikang nága Takšaka, ikaŋ sumahut iŋ wwaŋ atuha nira.}}
\]

(matiki-ikaŋ) 

not dead-that snake Takšaka that-the bite O-PREP person old his

'The snake which bit his father did not die.'

The literal translation of this sentence is 'the snake, the-[one]-having-bitten-his-father, did not die'. In this sentence one can see the development from a demonstrative pronoun or definite article in Old Javanese to a relative marker which it has become in modern Javanese. Zoetmulder (1983:33) likewise assumes that *siŋ “is still a definite article”, which I interpret as meaning that *siŋ must have developed from the personal article *si + the definite marker -ŋ.

Also among other non-Philippine Western Malayo-Polynesian languages the linker ŋ seems to occur only sporadically. The only position where it is found is in numeral compounds. On the basis of evidence from Bario Kelabit (Sarawak), Simalur and Tongan, Blust (1974b:7) reconstructs a PMP numeral linker *D(a), reflexes of which are found after digits and before higher order numerals. But the use of the linker in numeral constructions was broader. It occurred:

1. between the initial digit and following higher order numerals (i.e. a reflex of MP *puluq 'ten', *Ratus 'hundred' or *Ribu ‘thousand’), and
2. after attributively used numerals and quantifiers.

For instance, the Batak languages maintained ŋ in numerals and quantifiers which are used attributively before numeral classifiers or which precede the word for ‘ten’ in numeral compounds. Compare the following Toba Batak examples:

\[
\begin{align*}
\text{sa/m-pulu} & \quad \text{‘ten’} \\
\text{obuk piga-ŋ buluŋ?} & \quad \text{‘how many hairs on the head?’ (lit. head-hair how many leaves)} \\
\text{lasunasa/m-batu} & \quad \text{‘one piece of onion’} \\
\text{gaol pitu-ŋ sihat} & \quad \text{‘seven rows of bananas’}
\end{align*}
\]

Balinese has maintained -ŋ (a) in attributively used digits ending in a vowel, and (b) in quantifiers when these are used attributively (i.e. before nouns or classifiers). It has also maintained it in numeral compounds between digits and higher order numerals. Examples from low Balinese (note that final a is pronounced as ə) are:

(a) \[\begin{align*}
\text{lima-ŋumah} & \quad \text{‘five houses’} \\
\text{kuda-ŋ dina?} & \quad \text{‘how many days?’} \\
\text{sela kayu lima-ŋ bəsi?} & \quad \text{‘five cassava roots’ (sela kayu ‘cassava’; bəsi? = numeral classifier for roots)}
\end{align*}\]

(b) \[\begin{align*}
\text{tlu-ŋ asa} & \quad \text{‘thirty’ ((d)asa ‘ten’)} \\
\text{pitu-ŋ asa} & \quad \text{‘seventy’} \\
\text{tlu-ŋ atus} & \quad \text{‘three hundred’}
\end{align*}\]

---

8 Zoetmulder (1983:31) remarks that the deictic value of *ika-ŋ is often minimal, so that its function is almost reduced to that of a definite article.

9 For the sake of clarity I follow Warneck’s (1977) spelling. It is more conservative than the spelling used by Van der Tuuk (1971), and it ignores most of the far-reaching effects of sandhi in Toba Batak.

10 I am grateful to Ida Ayu Mediani to whom I owe the Balinese examples in this paper.
pitu-ŋ atus  ‘seven hundred’
ulu-ŋ tali  ‘eight thousand’

Madurese has maintained ŋ in the digits petto? ‘seven’, ballu? ‘eight’ or saga? ‘nine’ when these are used attributively or in a numeral compound with polo (‘ten’) (Penninga & Hendriks 1937, Appendix p.3). Examples:

petto-ŋ ropiya  ‘seven rupiah’
ballu-ŋ are aggi?  ‘in eight days’ (are ‘day’; aggi? ‘again’)
saga-ŋ polo  ‘ninety’
saga-ŋ barna  ‘nine kinds’ (barna ‘kind’)

Malagasy and Maanyan maintain a reflex of *ŋ in numeral compounds between digits and higher order numerals (Dahl 1951:268ff.). So do the South Sulawesi languages (Mills 1975:230-231). Buginese phrases such as duangpasso ‘two days’ (< dua ‘two’ + /ŋ/ + asso ‘day’) suggest that in the history of the South Sulawesi languages *ŋ was also found with attributively used digits (Sirk 1979:104, n.52).

The Way Lima variant of Lampung (South Sumatra) still has a ligature  OaN- in numerals between digits and puluh, the word for ‘ten’, and sometimes before numeral classifiers (Walker 1976:16-17). This  OaN- is possibly a derivation from an earlier *ŋ. Examples:

xua ŋam-puluh  ‘twenty’
pa? ŋam-puluh  ‘forty’
talu ŋam-biji manu?  ‘three chickens’ (talu ‘three’; biji ‘(numeral classifier)’; manu? ‘chicken’)

Nias has a linker ŋa- in numeral compounds between digits and higher order units (Sundermann 1913:63).

Sichule (which is closely related to Simalur) has ŋa or the assimilated remainders of a proclitic *ŋ in numeral compounds between digits and higher order units and between attributively used digits and following nouns or numeral classifiers (Kähler 1955:57-59).

Proto Minahasan used a linker *ŋa in these cases (Sneddon 1978:101-103).

The Malayic languages (including Malay, Minangkabau in Sumatra, Banjarese, Iban, Kendayan and Salako in Borneo), Chamic languages, Acehnese and Sundanese lost ŋ everywhere except in a few fossilised cases in Malay (see section 1.2.1) and in Sundanese (see section 1.5).

There is also no evidence for ŋ in Ngaju Dayak, in Gayo or in Rejang, but the sources for Rejang are rather incomplete. The loss of a linker in Malayic, Chamic, Acehnese and Sundanese is interesting from a classificatory point of view as it seems to bear out a close relationship between these languages.11

1.2.3 CONCLUSION

The ligature ŋ(a) is in some form or other found in a large number of MP languages. Tagalog uses ŋ/na in almost any type of adjunct + noun phrase. Old Javanese, where its use is more limited, has it as a definite marker in noun phrases, where it is often cliticised to

---

11 But cf. Nothofer (1985:297) who considers the relation between Malay and Madurese at least as close as that between Malay and Sundanese.
demonstratives, emphatic particles or prepositions preceding the head. Both Tagalog and Old Javanese also use $\eta$ (/na) with digits and quantifiers in larger numeral compounds or noun phrases. South Sulawesi, the South-East Barito languages, modern Javanese, Madurese, Balinese and possibly also Lampung, Nias, Sichule and the Minahassan languages use $\eta(a)$ only as an element enclitised to digits in larger compounds and to attributively used digits and quantifiers. Finally, Ngaju Dayak, Gayonese, (Rejang?), Achinese, Sundanese and the Chamic and Malayic languages do not have it as a living morphosyntactic element. This can mean two things: (1) that a PMP linker $*\eta(a)$ developed from a linker with numerals and quantifiers to a general linker in phrases consisting of an adjunct + noun, or (2) that a PMP linker $*\eta(a)$ occurring in noun phrases and in constructions with numerals and quantifiers lost part or all of its functions in most non-Philippine MP languages. I choose the latter explanation in view of the fact that $*\eta(a)$ has the larger range of functions in the Philippine languages, which are morphosyntactically probably among the most conservative in the MP branch, and furthermore that Javanese, a non-Philippine language, has reduced the use of $\eta$ considerably over time. It should be remembered here that Javanese is the only Austronesian language with a well-documented history for over a thousand years. It remains unclear how $*\eta(a)$ resulted in an allomorph $*na$ in Philippine languages.

The fact that Sundanese, Acehnese, and the Chamic and Malayic languages lost $\eta$ as a clitic with digits may be due to the fact that they replaced the PAN numerals $*\text{pitu}$ ‘seven’, $*(w)\text{walu}$ ‘eight’ and $*\text{siwa}$ ‘nine’ with numerals ending in consonants. Such a development might have marginalised the use of $\eta$.

In view of the gradual loss of the linker $*\eta$ in non-Philippine MP languages, I assume that Standard Malay maintained a fossilised $*\eta$ in its relative pronoun $\text{ya}/\eta$, and that Malay $\text{bara}/\eta$ originated from an original PMP indefinite quantifier $*\text{baRa} + *-\eta$. In the early history of Malay, PM $*\text{bara}$ was followed by $*\eta$ in noun phrases. This $*\eta$ became gradually encliticised and the resulting $\text{bara}/\eta$ was in some cases reinterpreted as a noun meaning ‘thing’, and in other cases as a marker of indefiniteness or uncertainty.

A development similar to $*\text{baRa} + *-\eta$ must have occurred with Toba Batak $\text{manag}$. This word often occurs in combination with interrogative pronouns and is glossed as follows:

- $\text{manag}$ ‘or’;
- $\text{mana}g\ldots\text{mana}g\ldots$ ‘either...or...’;
- $\text{mana}g\text{ ise}$ ‘somebody, anybody, whoever’;
- $\text{mana}g\text{ aha}$ ‘something, whatever’;
- $\text{mana}g\text{ tu dia}$ ‘wherever to’;
- $\text{mana}g$ andigan pe ‘whenever’ (Warneck 1977)

(Toba Batak ise ‘who’; aha ‘what’; tu dia ‘whereto’; andigan ‘when (referring to future)’; pe ‘also; even’.)

$\text{Manag}$ must be related to Malay $\text{mana}$, an interrogative pronoun which, depending on context, means ‘where; which; what; how; why’ (Wilkinson 1959). It developed from an interrogative pronoun or indefinite marker $*\text{mana} + *-\eta$. It acquired $*-\eta$ through its occurrence in conjunction with interrogative pronouns or other phrase complements.

1.3 EVIDENCE FOR A PMP $*\text{baRa}$ DENOTING INDEFINITENESS AND/OR QUESTION

Blust (1980a:48) considers Bare’e $\text{bara}$ ‘particle of uncertainty of knowledge, perhaps’ as a reflex of either $*\text{baraq}$ or $*\text{baryq}$ ‘marker of uncertainty, conditionality or hope’. Although this is phonologically sound (as Bare’e lost original final consonants), this form can equally
well be related to a PMP *baRa denoting uncertainty and indefiniteness of object or number. Other reflexes are:

Tagalog *baga* 'interrog[ative] adv[erb], (particle used in questions). Var[iants:] ba (northern Tag[alog], ga (southern Tag[alog])'*

Karo Batak *bara* ge ‘maybe’

Buginese *səbara tau* 'any person' (Sirk 1979:104, n.53; tau ‘human’)

Madurese (sa-)bara ‘(a) hundred million’

Old Javanese *bara-bara, ba-barra = barao, barar* ‘anything which, whatever, just any(-body); just as it comes, just anyhow, indiscriminately, without further thought, without sufficient cause; at any time, continually’

modern Javanese *bara-bara* ‘fortunately that, it would be good if’ bara-a, m-barra ‘maybe’;

pira-ŋ bara, sa-barra ‘when, as soon as’

Iban *bara?* ‘given to frivolity: b[ara?] barmain kita? tu? ‘you do nothing but play about’;

b[ara?] dara ‘a frivolous woman’

The Tagalog correspondence became a question marker. The change from a marker of indefiniteness and uncertainty into a question marker is not difficult to conceive, especially since *ba* and *ga* are more frequently used in information questions than in yes-no questions (Schachter & Otanes 1972:424). A complicating factor for Tagalog is that it also has another correspondence, *bala*, an indefinite pronoun which often occurs with the linker *ŋ* suffixed to it, as in sa balaj manalo ‘to whoever will win’ (Kern 1918:172); Kern proposes *bala* as a regular cognate form of Malay *baraŋ*. The semantics of *bala* would allow for such a cognate relation, but the sound correspondences do not, since PMP *R* regularly becomes Tagalog *g* (as in *baga*), and not *l*, except in Malay loanwords. This leaves three possibilities for the origin of *bala*. Firstly, the agreement between Tagalog *bala* and Malay *baraŋ*, etc. is due to chance resemblance. Secondly, *bala* is borrowed from an early form of Malay in which *bara?* had not yet acquired the now fossilised suffix *-ŋ*. Thirdly, *bala* is borrowed from Malay and it reflects Malay *baraŋ*, but the final nasal was interpreted as a linker and became disconnected from the root through backformation. With the historical data at hand I find it impossible to decide between these three possibilities. In spite of this, however, it is clear that *baga* (whether in full or reduced form) is the inherited Tagalog reflex of PMP *baRa*, and not *bala*.

In Madurese sa-barra, the semantic shift went from ‘indefinite number’ to ‘a number that is difficult to grasp because of its largeness’, such as a hundred million. A shift from ‘indefinite number’, ‘night’, ‘obscurity’ or ‘mist’ to ‘thousand’ or higher numbers is not uncommon, (cf. Malagasy *alina* I ‘10,000’, *alina* II ‘night, obscurity’; Dairi Batak *galap* I ‘obscure’, *galap* II ‘10,000 or higher numbers’).

In Iban, the meaning elements of uncertainty and indefiniteness changed to frivolity.

I assume that pre-Malay *bara*, Tagalog *baga*, Bare’e, Karo Batak and Buginese *bara*, and Iban *bara?* are reflexes of the same MP protoform which I reconstruct as *baRa*, a marker of uncertainty and indefiniteness of object or number. Old and modern Javanese *bara* is probably borrowed from Malay, since both Javanese *b* for PMP *b* and Javanese *r* for PMP *R* (instead of expected *w* and *o* respectively) indicate borrowing.

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12 *ge* is an emphatic marker which is cliticised to the preceding word and which is realised as [ŋ] if this word ends in a vowel. As a result, *bara ge* is pronounced [baran]. This apparently confused Neumann (1951) who wrote for this form: ‘*bara ge = baraŋ l?*’ and for *baraŋ* I ‘maybe, possibly; II good(s), belongings, possessions’.
The assignment of Malay бгapa to a now lost pre-Malay *bara (< PMP *baRa) + the interrogative pronoun apa ‘what?’ is phonologically sound. In Malay phonological history a word of more than two syllables tended to become contracted if it contained adjacent vowels or vowels that were separated from each other by a glottal. Furthermore, in most present-day variants of Malay, antepenultimate vowels have as a rule been neutralised to ə (for examples, see section 2). An allegedly frequently used phrase like *bara *apa would therefore have become бгapa in allegro speech, for example:

Proto Malayic *bara +*apa > pre-Malay *barapa > *barapa > бгapa

That Proto Malayic *bara and *apa did not yet occur as a compound is evident from the fact that this compound has only a limited distribution in the Malayic language subgroup; cf. Banjarese sa'apa, Salako saapa, Kendayan sajahe, Iban masak (occurring along with бгapa, which is borrowed), Minangkabau barâ (< *bara - a(ha)), Jakartanese бгape, South Sumatran Malay бгапо, Urak Lawoi' brapa (which is a loan).13

1.4 EVIDENCE AGAINST EARLIER RECONSTRUCTIONS ON THE BASIS OF MALAY бган AND ITS CORRESPONDENCES

The following reconstructions have been proposed on the basis of Malay baran in the sense of ‘goods, commodity; article, object; thing; baggage, luggage’:


Moreover, Mills (1975:625) on the basis of corresponding forms in South Sulawesi languages reconstructs

Proto South Sulawesi [PSS] *baraj ‘goods, merchandise’.

On the basis of бган in the sense of ‘any’, ‘more or less’, ‘perhaps’ and ‘would that’, Blust (1980a:48) reconstructs the following doublets:

PWMP (a) *baraj, (b) *baru ‘marker of uncertainty, conditionality or hope’, cf. (a) Kankanay bála ‘provided, it is to be seen if, we will see if, it is to be hoped that (used only in tales)’, Hanunóó bára ‘perhaps, expressing uncertainty or suspicion’, Karo Batak ‘perhaps’; (b) Ilokano báre ‘let us hope, hoping; if perhaps, maybe, haply, possibly’, Kayan bari ‘apologetically – “it is not as if”; interrogatively – “is it not?”’

In a note Blust adds:

Isneg bára ‘a conjunction: if, perhaps, haply, let us hope’, Iban baraj ‘according to, if, any, depending on, etc.’, Malay baraj-kali ‘perhaps’, baraj siapa ‘whoever’, Bare’e bara ‘particle of uncertainty of knowledge, perhaps’ can be assigned to either set.

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13 My conclusion that Iban barapa and Urak Lawoi’ brapa are Malay borrowings is based on the fact that these languages have no interrogative pronoun apa nor any derivation thereof (both languages have nama instead).

14 In Javanese waraj actually means ‘rat poison’. It seems that Dempwolff unconsciously applied an expected sound law to Javanese baraj, which has more or less the same meaning as Malay baraj.
I reject the protoforms proposed above on a number of grounds which may not be conclusive in themselves but which reinforce each other to the point of making it unlikely that there ever was a P(W)MP, PMJ or PSS *baraŋ.

Firstly, these etyma reflect PAN *r. This protophoneme has been the subject of some controversy among Austronesianists. Some reject it and find that it is based on the evidence of loanwords (e.g. Wolff 1974), whereas others believe that it is a firmly established protophoneme (e.g. Blust (1980a:20ff.) and numerous other Blust publications). But no matter what stand one takes on this matter, there is general agreement about the fact that PAN *r was reconstructed in a large number of etyma which turn out to be false (in contradistinction to etyma containing *R).

Another factor is that the alleged reflexes of P(W)MP/PMJ/ PSS *baraŋ have remained remarkably similar in meaning, and that some of them even reflect the nominal as well as the adverbial meanings which have been reconstructed. Both meanings are found in Malay, and all languages showing reflexes of P(W)MP/PMJ/PSS *baraŋ have been under considerable direct or indirect Malay influence.

Finally, the phonological shapes taken by the alleged reflexes of *baraŋ generally favour a borrowing argument. This is particularly clear in the case of Javanese baraŋ, Madurese bharay and Kankanay bulaŋ. Javanese b (in positions other than following a schwa) and Madurese bh are usually loan phonemes (Nothofer 1975:130). Kankanay bulaŋ (which only occurs in tales, cf. Vanoverbergh 1933) reflects neither PAN *r nor PAN *R or *l. These three protophonemes generally merged as Kankanay l, but Reid (1973) points out that in certain positions they merged as ?, w or a voiced velar fricative. In the environment *a _ a the expected reflex is a voiced velar fricative, and therefore bulaŋ must contain a loan.

Ilokano and Kayan both have baraŋ, which obliged Blust to reconstruct a PWMP doublet *baraŋ. The schwa in Ilokano and Kayan baraŋ would at first sight suggest that these forms cannot be borrowed from Malay. But both languages sometimes change the last syllable a of loanwords into a schwa. Compare the following loanwords in Ilokano (Reid 1982:209-210):

\[
\begin{align*}
pandak & \text{‘short’} \quad < \text{Tagalog pandak ‘id.’} \\
sikkad & \text{‘ratify, confirm’} \quad < \text{Tagalog sikkad ‘ratify, confirm’} \\
timbaŋ & \text{‘scales’} \quad < \text{Malay, Tagalog timbaŋ ‘id.’}
\end{align*}
\]

Compare the following loanwords in Kayan:

\[
\begin{align*}
adat & \text{‘customs, law; behaviour’} \quad < \text{Malay adat ‘id.’ (<< Arabic)} \\
harap & \text{‘hope, wish’} \quad < \text{Malay harap ‘id.’ (<< [Old] Javanese)} \\
səluən & \text{‘trousers’} \quad < \text{Malay səluar ‘id.’ (<< Persian)} \\
akah & \text{‘cunning’} \quad < \text{Malay akal ‘id.’ (<< Arabic)} \\
tuan, tuan & \text{‘European’} \quad < \text{Malay tuan ‘id.’}
\end{align*}
\]

So there is no phonological obstacle to considering Ilokano and Kayan baraŋ as loanwords from Malay. Moreover, in the case of Kayan baraŋ (with the above meaning) Southwell (1990) also has a synonym baraŋ ‘equipment, things’, which he labels as a Malay loanword, and which occurs along with a more original synonymous term davan.
1.5 Evidence against Brandes’ etymology for Malay barapa

As far as I know, no reconstruction has been proposed on the basis of barapa. Barapa replaced an earlier PAN *pija which is still well represented all over the Austronesian language family.

Brandes (1884) analysed barapa as a form of apa ‘what?’ prefixed with the intransitive verbal marker bar-, and later scholars have not yet questioned his etymology. But there is no strong functional or semantic argument for this analysis. Besides, Brandes’ argument would fail to explain quantifiers on the basis of bar- or bør- in languages which do not have an intransitive verbal prefix bar-/bør-, such as Sundanese and Madurese.

Sundanese has (sa)baraha ‘how much/many?’, which consists of an unidentified (sa-)bar/- + aha ‘what?’ Sundanese intransitive verbs are generally marked with an infix -um-, and there are also a few intransitive verbs with a-, ma- and ba-, but not with bar-.  

Madurese has barampa (low register) ‘how much/many; how large?’, It also has bar-iya (low register) and bar-into (middle register) ‘such’ and sa-bar-iya (low register), sa-bar-into (middle register) ‘as big as (this)’. But it does not have a prefix bar-, nor does it have *ampa. Other Madurese forms reflecting *baRa are bharaj ‘something, good(s), object, luggage; (the thing) that/which’, sa-bharaj ‘each’, bha-baraj ‘all’, sa-bharaj-an ‘average, usual; no matter what’, and sa-bara (section 1.3). Bharaj is likely to be borrowed from Malay (section 1.4). Sa-bara on the other hand reflects MP *baRa as an indicator of indefinite number (see section 1.3).

Bør/apa, bør/aha, bar/ampa, bar/iya and bar/into have replaced PAN *pija ‘how many’. It is likely that these innovations originated through language contact between Malay, Sundanese and Madurese.

This is most clearly the case with Madurese bar/ampa, which may be an early borrowing from Malay. Madurese has no interrogative pronoun *ampa or a derivation thereof, whereas Malay has the following range: apa ‘what?’; si/apa ‘who?’; kən/apa ‘why? how?’; maj/apa ‘why?’; bat/apa ‘to what extent?’.

Sundanese (sa)bar/aha is derived from *aha, which is still found in s/aha ‘who?’, kumaha ‘how?’, n/aha ‘why?’ ir/aha ‘when?’ The development of (sa)bar/aha in analogy to bør/apa may be the result of Malay influence, but it could also an independent development.

2. On the history of Malay words for animal

A remarkable fact about the Proto Austronesian lexicon is that it seems to have lacked a general term for ‘animal’. The Comparative Austronesian dictionary (Tryon ed., 1994) provides data from eighty languages from all main branches of the Austronesian family. The general term for ‘animal’ in these languages is given under gloss no. 03.110.

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15 Interestingly enough, what Sundanese does have is a verbal prefix or proclitic barag- denoting indefiniteness of object. Compare:

* hakan ‘eat’ barag-hakan ‘eat things, eat (in general)’
* gawe ‘work’ barag-gawe ‘do some work, work a bit’
* bili ‘buy’ barag-bili ‘do some buying’

16 -iya and -into are deictic elements which only occur in combination with bar-, da²- or ka²-.

17 In a more recent borrowing one would expect bh instead of b.
From the wide variety of terms listed under this gloss it appears that:
- there is no set of related terms which serves as firm evidence for the reconstruction of a Proto Austronesian etymon;
- many languages use paraphrases such as ‘living creature’, ‘animate thing’, ‘hunting object’, or they use the same term as for ‘game’ or ‘meat’;
- some languages use words the primary meaning of which is ‘dog’, ‘bird’, ‘pig’ or some other specific animal;
- some of the terms given actually refer to ‘domestic animal’ or ‘cattle’ rather than to ‘animal’ in general;
- many languages use loanwords; as far as Indonesian languages are concerned, these loanwords are often derived from either Malay *binata*, Sanskrit *sattva* or Arabic *haywān* (all meaning ‘animal’).

An exception to the heterogeneity of general terms for ‘animal’ seems to be the South Sulawesi languages, which generally reflect a protoform which could be reconstructed as Proto South Sulawesi *oloʔ-oloʔ* for this notion.

As all languages which have *binata* or a corresponding form have undergone Malay influence, I assume that they borrowed this form from Malay. 18

Another problem is the origin of Malay *binata*, which cannot be an inherited word either. Inherited trisyllabic Malay words always have a schwa in the first syllable, except when the following consonant is a semivowel or *h* (Adelaar 1992:10). The shape of *binata* furthermore suggests that it contains the infix *-in-*, a PAN passive marker or nominalising infix which was already lost in PM (Adelaar 1992:193). Other Malayic languages do not necessarily have a form corresponding to *binata*, cf. Iban *jolul* ‘(wild) animal, game’, Salako and Kendayan *laok* ‘wild animal; meat, side-dish’. When they do have a corresponding form, its shape suggests borrowing because of its *i* (instead of schwa) in the first syllable, cf. Jakartanese, Seraway (Sumatra) *binata*. 19 The origin of Malay *binata* remains unclear. Brandes (1884:175, fn.3) related it to Ibanag *bata* ‘trap-net’ and to Sundanese *pamata* ‘someone hunting deer on horseback with a spear, a sword or a lasso’ (derived from *wata* which is glossed ‘lance’ in Eringa 1984). While not impossible, the connection remains vague.

In general, then, there is little evidence for a protoform on whatever level on the basis of *binata* and its correspondences, and there is also little evidence for a general and exclusive term for ‘animal’ in Proto Austronesian. 20

But we are on firmer ground when looking for the history of the term for domestic animal. Dempwolff reconstructed PMP *‘ajam* ‘be domesticated’ which was allegedly homonymous to his PMP etymon *‘ajam* ‘to play’. With the increase of data since he compiled his PMP lexicon, we now know that these homonyms were probably one etymon covering a configuration of related meanings, and that this etymon should be reconstructed (in Dyen’s orthography) as *qayam* ‘domestic animal (including pig, dog, fowl); plaything’.

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18 A remarkable corresponding form is Cham *pinata*, which is glossed ‘machine’ in Moussay (1971).
19 A problem in evaluating forms corresponding to Malay *binata* in other Malayic isolects is that the available dictionaries do not specify what the status, degree of adaptation or frequency of occurrence of such forms is.
20 Dr D.J. Prentice (pers.comm.) first drew my attention to the lack of a term referring to animals as a category in Austronesian languages.
In Malay the reflex of *qayam underwent a semantic narrowing-down, and we find ayam ‘chicken’. But this is not the meaning which should be reconstructed for PM *hayam, as other Malayic languages have different meanings. Compare corresponding forms like Kendayan pa-hayam-an ‘livestock’, Iban ayam ‘plaything, toy, pet’; uduk ayam ‘pet dog’; ḡ-ayam ‘play’. These lead to the conclusion that Proto Malayic still had the original Proto Western Malayo Polynesian meaning configuration of ‘tame’ (or ‘domesticated’) and ‘playing’. From a Proto Malayic *hayam the meaning narrowed down to one particular domesticated animal in Malay, to ‘domesticated animals (in general)’ in Kendayan, and to ‘plaything’ and ‘pet animal’ in Iban. In Malay it replaced PM *manuk ‘chicken’, reflexes of which are still found in Kendayan and Iban.

But it seems that developments concerning PM *hayam have not stopped there. Malay has a word main for ‘to play’, which has corresponding forms in other Malayic languages and in Achehnese and Cham.21 Main must be a reflex of a pre-PM verbal derivation22 *q-um-ayam ‘to play’, and there are a number of less common but regular Malayic changes to explain its present shape. These are:

(i) Vowel contraction and assimilation of adjacent vocoids

As I already mentioned in the last part of section 1.3, in the history of Malayic languages the tendency to vowel contraction is most commonly observed in words of more than two syllables. It was already operative in Proto Malayic and it is still so in present-day Malayic languages. It is one of the ways in which tri- or tetrasyllabic words could become disyllabic, which is phonotactically the preferred structure of a Malayic root. The contraction affected adjacent vowels, or vowels which were separated by a glottal. Examples:

\[
\begin{align*}
PMP *Rahut & \rightarrow \text{Malay rotan} 'rattan' \\
PMP *ma-iRaq & \rightarrow \text{Malay merah} \\
PM *kələ(h?)əm & \rightarrow \text{Malay kə(l)maren, kə(l)marin} 'yesterday' \\
PM *k(a,g)+*iri & \rightarrow \text{Malay kiri} \\
PMP *ma-ka?an & \rightarrow \text{PM makan} \\
\text{PM} *ulu?tu?at & \rightarrow \text{Malay lutut} \\
P(\text{W})MP *(dD)ahuk & \rightarrow \text{PM *duduk}
\end{align*}
\]

Another, less common, form of vowel reduction is the assimilation of the sequence *-Vya- to -Vi- in Minangkabau and Seraway, two Sumatran Malayic languages. This reduction has also occurred in disyllabic roots. Examples:

\[
\begin{align*}
\text{PM} *bayar & \rightarrow \text{Minangkabau baï23 Seraway baix 'id.'} \\
*layar & \rightarrow \text{Minangkabau laï23 'id.'} \\
*lampuiyaŋ & \rightarrow \text{Minangkabau lampuiaŋ 'id.'} \\
*bayas & \rightarrow \text{Seraway bais 'id.'}
\end{align*}
\]

---

21 The sound changes outlined in what follows were not shared by Cham or Achehnese. Therefore, as a consequence of my etymology for Malay main, Cham mu’ïn and Achehnese meu?en must be loanwords from Malay.

22 Or at least a derivation from an earlier stage than Proto Malayic, since there is no evidence that Proto Malayic still had productive infixes (cf. Adelaar 1992:193-194).

23 The endings of the Minangkabau forms baï and laï are the result of velarisation of *i through a following velar fricative which was subsequently lost (so, Proto Malayic *bayar > *baix > *baïx > baï, and Proto Malayic *layar > *laix > *laïx > laï).
The same *-aya-* -ai-* assimilation has taken place in Malay lain ‘other’, which derives from an original lai (still found in Old Malay) + -an (Adelaar 1988:71).

(ii) A constraint against *-ip and *-im endings

In PM there seems to have been a constraint against last syllables containing *i + a final labial (i.e. a constraint against *-ip and *-im endings). Several factors indicate this:

(a) as a rule, Malayic roots ending in -ip and -im are borrowed (mostly from Arabic, e.g. hakim ‘judge’; iklim ‘climate’; musim ‘season’; nasip ‘fate’; tabip ‘physician’);
(b) the few words ending in -ip or -im that are not readily identifiable as loanwords do not have sufficient correspondences within the Malayic subgroup to yield evidence for a PM etymon;
(c) the best attested (and one of the very few) higher order etyma ending in *-ip is reflected with vowel metathesis in the Malayic languages, for example:

PAN *quDip ‘live’ > PM *hidup ‘id.’

(iii) Apocope of the first syllable after affixation of *-um-

The PAN affix *um-* (before initial vowels) or *-um-* (after initial consonants) only appears in fossilised forms in Malayic languages, and it probably had already ceased to be a living affix in PM (Adelaar 1992:193-194). When *-um- was infixed after initial *q or a labial, the resulting syllable became reduced to m- in Malay, as is shown in PAN *-um-* + *qinum ‘drink’ > Malay m/num ‘id.’ and in PAN *-um-* + *paCay ‘death’ > Malay m/ati ‘dead’. In fact, in cases where an initial labial applies, this reduction is a rather widespread phenomenon among Austronesian languages. In the case of initial *q, several factors account for this reduction:

- loss of initial *q (PAN *q- > PM *h- > Malay (usually) ø, (sometimes) h-);
- antepenultimate vowel neutralisation;
- a tendency towards disyllabicity;
- particularly in trisyllabic roots, initial (h)ø- sequences are disfavoured, and *(h)ø-sequence as a rule were lost (Adelaar 1992:52-53).

These changes and tendencies must have lead to the present shape of main. If we accept the possibility that contraction was limited not only to adjacent vowels but also to adjacent vowels plus semivowels (as it sometimes was in Minangkabau and in Seraway disyllabic roots, and as it may have been in Malay lain), Malay main can be derived from it through the following stages:

I WPMP *-um-* + *qayam -----> *q-um-ayam
II assimilation of adjacent vocoids: *-ya-* > *yi-* -----> *qumayim
III contraction of *-yi-* to *-i-* -----> *qumaim
IV PMP *-im-* > PM *-in -----> *qumain
V *q > *h or ø; antepenultimate vowel neutralisation -----> *(h)ø-main
VI loss of initial *(h)ø-sequence -----> main

The relative order of stages IV, V and VI could also have been different, but they must have taken place after stages I and II.

A semantic contingency of ‘domestic animal’, ‘pig’, ‘dog’, chicken’ and ‘to play’ is exemplified in the reflexes of *qayam of many other Austronesian languages (Dempwolff
HUMAN BEING

The general term for ‘human being’ reconstructed for Proto Austronesian is *Cau. This term has reflexes in languages of Taiwan, the Philippines, Borneo, Sulawesi, the Molucca Islands and Oceania. Other languages have a reflex of PMP *qaRtaq for this notion. These languages are found in Simalur (off Sumatra’s west coast), in eastern Indonesia (eastern Sulawesi, central and southern Molucca Islands, Lesser Sunda Islands), in the Negrito languages of the Philippines and in some Oceanic languages (Blust 1972b:166ff.).

Other terms for ‘human being’ which are not limited to well-defined linguistic subgroups are those reflecting PMP *qulun and *uRav. Reflexes of *qulun meaning ‘human being’ are found in Borneo (including Malagasy) and in the various forms of Lampung; *qulun has reflexes meaning ‘slave’ or ‘servant’ in the Chamic languages, in some Bornean languages, and in languages of Java and Sumatra. Reflexes of *uRav meaning ‘human being’ are found in the Chamic and Malayic languages and in Achehnese, Javanese, Sundanese and Madurese.

There is a complication involved in the meaning that should be assigned to *qaRtaq and *qulun. Reflexes of these etyma mean either ‘human being’ or ‘slave’ (or, in some Philippino languages, ‘Negrito, black person’ for *qaRtaq).

For *qaRtaq, Blust tries to reconcile these notions through a reconstructed meaning ‘outsiders, alien people’ (Blust 1972b:169). By giving different meaning connotations to *Cau (‘real people; us; our own kind’) and *qaRtaq (‘outsiders, alien people’) he also accounts for the otherwise awkward fact that there are two Proto Austronesian etyma with reflexes having the meaning ‘human being’. But where it is easy to see how a word can change its meaning from ‘outsiders; alien people’ to ‘slave’, it is much less easy to see how it could change this meaning into ‘human being’. Some of the Philippino Negritos use a reflex of *qaRtaq to refer to themselves, and Reid (1994) finds it unlikely that they would use as an endonym a term which originally referred to ‘outsider’.

A more likely explanation is that a post-PMP *qaRtaq originally meant ‘human being’ and that via slave trade and subordination this term became reinterpreted as ‘slave’ or ‘subordinate’ by the slave-trading or subordinating people. Parallel semantic developments must have taken place in the developments of the terms for ‘slave’ and ‘Slavic person’ in Western European languages, and in the uses of the term kanaka in the Pacific. One of the implications of this explanation is that reflexes of *qaRtaq meaning ‘slave’ or ‘Negrito’ must be borrowings. This would allow for a more accurate insight into the spread of inherited reflexes. Applying this explanation to reflexes of *qulun would single out Lampung (South

24 Compare also semantic shifts of PAN *manuk ‘fowl’ in the daughter languages.
25 But here, as far as I know, only in the Tamanic languages which are closely related to the South Sulawesi languages (Adelaar 1994).
26 Compare Blust’s PAN *qa(R)(CtT)a ‘outsiders, alien people’ (Blust 1972b:169) as modified by Reid (1994). This etymon has no reflexes in Taiwanese languages.
27 Blust (1972b) seems to suggest a reconstruction of the same meaning for *qulun (for which Dempwolff (1938:162) gives ‘human being’, in which he observes ‘a parallel duality of meaning’.
Sumatra) and Bornean languages (+ Madagascar), as languages in which *qulun is inherited, as these are the only languages where it means ‘human being’.

Blust’s gloss ‘outsider; alien people’ for *qaRta would certainly befit PM *uraŋ, which is a reflex of PMP *uRag ‘human being’ and which I initially glossed ‘human being’ (in my 1985 thesis). I did this on the basis of the usual meaning of its modern Malay reflex and on the basis of its general meaning given in dictionaries of Malayic languages and dialects. However, field experience with Salako and a further investigation of the data provided by the Malay and Iban dictionaries induce me to expand the meaning of PM *uraŋ to ‘human being; outsider’.

The Salako term urâŋ, although generally meaning ‘human being’ is never used for one’s own relatives or close friends. In fact, calling relatives or close friends urâŋ would insult them and alienate them: one would call them urâŋ only in order to imply a break of ties. The term urâŋ is used to refer to outsiders (possible enemies, headhunters), or to an ethnic entity as in urâŋ Saribas ‘the Ibans’, urâŋ Laut ‘the Malays’, urâŋ Salako ‘the Salakos’.


The connotation of ‘outsider’ was lost in Malay orag, although it is still attested in phrases like naqari orag [‘countries of people’ =] ‘abroad, foreign countries’, istari orag [‘the wife of people’ =] ‘someone else’s wife’ and baraŋ orag [‘things of people’ =] ‘other people’s belongings’. Further study of Malayic languages and of Classical Malay texts may yield additional evidence for an original meaning of ‘outsider’ for PM *uraŋ.

There is corroborating evidence for this gloss outside the Malayic subgroup. The connotation of ‘outsider’ is more explicit in the Jarai and Moken reflexes of PMP *uRag.30 Jarai araŋ is glossed as ‘undefined person’ (Lafont 1968), and in running text it is often translated as ‘someone else’ or ‘other people’ (cf. French autrui, Lafont 1963:39 and passim). Moken olag is glossed ‘another, [? he, etc.’ (Lewis 1960:90).

The Jarai and Moken evidence would indicate that the connotation ‘outsider’ can also be attributed to an ancestral form *uRag in a protolanguage of a higher order than PM. As a matter of fact, this seems to be possible, although there remain some reflexes of PMP *uRag showing semantic developments which are not directly clear, and which need further investigation. Dempwolff labelled his PMP *uRag ‘human being’, but present-day Malayo-Polynesian languages often have corresponding forms meaning ‘affine’, ‘friend’ or ‘cross-sibling’. Compare:

<table>
<thead>
<tr>
<th>Language</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cebuano</td>
<td>ugâpaŋ ‘parent of one’s spouse’</td>
</tr>
<tr>
<td>Macassarese</td>
<td>urâŋ ‘companion’; si-urâŋ ‘with’</td>
</tr>
<tr>
<td>Yamdena (Tanimbar)</td>
<td>ure ‘cross-sibling + parallel cousin’</td>
</tr>
<tr>
<td>Kei</td>
<td>uran ‘cross-sibling, cousin’</td>
</tr>
</tbody>
</table>

28 Kanaka, the Hawaiian word for ‘person’, acquired the meaning ‘seasonal labourer’ in Tok Pisin, where it is now used in a pejorative sense to refer to an uneducated person from the bush.
29 Spelled ‘orang’ in Richards’ orthography.
30 Jarai is spoken in Pleiku province, Vietnam; Moken is spoken in the Mergui Archipelago, South Mianmar.
Sikka (East Flores)  
*wra* ‘affine of the same sex of a woman
(father’s sister’s daughter, mother’s brother’s daughter, husband’s sister, brother’s wife)’

Tana Ai (dialect of S. Kanere, East Flores)  
*ura* ‘sister, brother’s wife, mother’s brother’s daughter, father’s sister’s daughter (woman speaking); cross-cousin, affine of the same sex (woman speaking)’

Tetun (Timor)  
oan ‘child, offspring’

Toba Batak  
*ura* ‘offspring’

Tondano  
*ura* ‘offspring’

These meanings must be related, and Dempwolff’s gloss ‘human being’ for PMP *uRaŋ* is therefore somewhat misleading. The latter must be a semantic specification that took place at a relatively recent date in a few West Indonesian languages (Malay, Cham, Javanese, Madurese). Dempwolff’s PMP *uRaŋ* should rather be glossed ‘outsider; affine; friend’.

Cebuano *ugápan* refers to an affinal relationship, and Macassarese *uraŋ* to friendship.

The unspecified meaning which Tanimbar *ure* and Kei *uran* have in common is that of ‘cross-sibling’. In the Tanimbar and Kei context, cross-sibling terms emphasise the fact that female siblings will eventually become members of a different clan, which is ideally one particular wife-taking clan in a chain of clans in a circular connubium system. So they will eventually become outsiders, members of an affinal clan. The meaning of Tana Ai *ura* and Sikka *wra* (basically, ‘female affine of a woman’) seems to be a later development thereof.

The Tetun, Toba Batak and Tondano meaning of ‘offspring’ must also have developed from PMP *uRaŋ*, but here the semantic development is much less transparent (particularly considering the fact that Toba Batak *uraŋ* has a relatively long history in common with Karo Batak *uraŋ* ‘cross-sibling’, see below). The Toba Batak term for ‘son’ is *anak*, which reflects PMP *anak* ‘offspring’. The fact that PMP *anak* became marked for male gender in Toba Batak would suggest that another term for ‘offspring’, such as Toba Batak *uraŋ*, was originally also marked for (female) gender. However, the present Toba Batak term for ‘daughter’ is *boru*, which speaks against such a speculation. The semantic developments of Tetun *oan* and of Toba Batak and Tondano *uraŋ* require further study.

The configuration of meanings ‘outsider’, ‘affine’ and ‘friend’ is also represented by the reflexes of Blust’s (1970:125) PMP etymon *tuRaŋ* ‘in-law’. Compare:

- Tagalog: *ma-núgaŋ* ‘child-in-law’
- Bikol: *tuغاََ* ‘sibling; in-law’
- Western Bukidnon Manobo: *e-núgaŋ* ‘parent-in-law’
- Proto Oceanic: *turаğaŋ* ‘companion, friend, neighbor, various kinsmen’

The following reflexes can be added to Blust’s material:

- Ilokano: *katуga∂an* ‘parent of one’s spouse’
- Bontok: *katога∂an* ‘id.’
- Isneg: *тuxагaŋ, manuxагaŋ* ‘son-in-law, daughter-in-law’;
  *katuxа∂an* ‘father-in-law, mother-in-law’

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31 As Blust’s PMP *(CtT)uRaŋ* only goes back as far as PMP (which merged PAN *C and *t to *t) and furthermore PMP *T turns out to be an erroneous protophoneme (Dahl 1981:23-25), I will use a more convenient PMP representation *tuRaŋ*.
THE HISTORY OF THING, ANIMAL, PERSON AND RELATED CONCEPTS IN MALAY

Sangirese
Karo Batak, Dairi Batak, Alas Batak
(= the northern Batak linguistic subgroup)
Buru

*tuha* 'older sibling'; *manuha* 'child-in-law'
*tura* 'term of address to cross-sibling'
*tuha* 'to accompany; with'
*Grimes* 1991:269

It appears that reflexes of PMP *tuRa* refer to affinal relationships in Philippine languages,32 to relations of friendship or to kin relationships in Oceania, and to a cross-sibling relationship in Northern Batak. As the Batak peoples have social organisations which are in some crucial ways similar to that of the Tanimbarese and Keiese peoples (notably with a prescribed circular connubium system), the Karo Batak concept of 'cross-sibling' must be closely associated with that of 'affine'.

The meaning of Sangirese *manuha* indicates an affinal relationship (the meaning of Sangirese *tuha*, on the other hand, does not).

The Buru reflex has become a verb the meaning of which is still associated with that of 'companion'.

It is quite likely that this PMP *tuRa* is related to PMP *uRa*. The range of meanings of their reflexes is covered by the same meaning configuration (although in both cases there are reflexes with problematic semantic developments viz. Tetun oan, Toba Batak and Tondano urag, Sangirese tuha). As for the initial *t* in *tuRa*, Blust (1979:228) points out that PMP had a referentiality-marking prefix *t*- which is still found – mainly in fossilised form – in kinship terms in the Malayo-Polynesian daughter languages. The referential value of kinship terms reflecting *t*- is often lost. I assume that Blust's *tuRa* was a referential form *t-uRa* used for outsiders who became accepted to one’s kin group through marriage or friendship, and that it was derived from a PMP *uRa* which I tentatively gloss ‘outsider; affine; friend’. The referential connotation was clearly lost in Oceanic and in the Northern Batak subgroup.

POSTSCRIPT

Terms for 'person' or 'human being' are also often used for '(house)post', 'pole' and 'mast'. Brandes (1884:120) first showed a relation between these notions by pointing out that parallel semantic configurations were found in the following cognate sets:

Tagalog, Bisaya haligi, Buli arihi, Ngaju Dayak jihi, Buginese aliri 'pole, post', Malay diri 'stand; oneself' (cf. PMP *haDiRi* 'stand; person; self');
Malay tia 'pole, post', High Javanese tia 'person';
Malay orar 'person', Ngaju Dayak owar 'post, pole'.

However, Ngaju Dayak owar does not reflect PMP *R* (which should have become *h* in Ngaju Dayak) and its meaning is actually 'piece of wood cut out of a tree or out of other wood' (Hardeland 1859). A relation with Malay orar is very doubtful.

Another use of the term for 'human' is as a first person pronoun. Compare Sundanese ura '1st p.pl.incl.); Javanese (polite language) rhulun, Achehnese lön 'I' (cf. Achehnese

32 Except for Western Bukidnon Manobo e-nugag, the Philippine reflexes agree in having a ka-an derivation for 'parent-in-law' and a maN- derivation for 'child-in-law'. In agreement with the semantics of their affixes, the ka-an derivations literally mean 'someone with the nature of (*tuRa*)', and the maN- derivations literally mean 'become/take on (*tuRa*)'.

ulôn ‘servant’; High Javanese tiyag ‘person; I’, High Balinese tiyag ‘I’; Salako, Kendayan diri? ‘(1st pl.incl.)’ (cf. Malay diri ‘self’ and bar-diri ‘to stand’ < PMP *DiRi ‘self; person; to stand’). The use of Javanese nyulun and Achehnese lôn for the first person singular is a consequence of the habit of using terms for ‘slave’ or ‘servant’ to refer to oneself in polite language (cf. Malay sahaya and High Javanese kawula ‘slave; I [= your slave’]).

LIST OF LANGUAGE SOURCES

Unless otherwise mentioned, the following language sources were used in this paper:

Acehnese: Kreemer (1931)
Alas Batak: Osra et al. (1985)
Balinese: I. A. Mediani (pers.comm.)
Banjarese Malay: Abdul Jebar Hapip (1977)
Bare’e: Adriani (1928)
Bontok: Reid (1976)
Buginese: Sirk (1979), Mills (1975)
Buru: Grimes (1991)
Cam: Moussay (1971)
Cebuano: Wolff (1972)
Dairi Batak: Tindi Radja Manik (1977)
Ilokano: Constantino (1971)
Isneg: Vanoverbergh (1972)
Jakarta Malay: Abdul Chaer Mad’ie (1976)
Jarai: Lafont (1968)
Javanese: Gericke and Roorda (1901)
Kankanay: Vanoverbergh (1933)
Karo Batak: Neumann (1951)
Kayan: Southwell (1990)
Kei: Barraud (1979)
Kendayan: Adelaar (unpubl. fieldnotes)
Lampung: Walker (1976)
Maanyan: Dahl (1951)
Madurese: Penninga and Hendriks (1937)
Malagasy: Dahl (1951)
Malay: Wilkinson (1959)
Minangkabau: Moussay (1981), Van der Toorn (1891)
Ngaju Dayak: Hardeland (1858, 1859)
Nias: Sundermann (1913)
Proto Austronesian: as indicated in text
Proto Malayic (PM): Adelaar (1992)
Proto Malayo-Javanic (PMJ): Nothofer (1975)
Proto Malayo-Polynesian (PMP): as indicated in text
Proto Western Malayo-Polynesian (PWMP): as indicated in text
Proto Minahasan: Sneddon (1978)
Proto Philippines: Zorc (1977)
Rhade: Tharp and Y-Bham Buon-Ya (1980)
Salako: Adelaar (unpubl. fieldnotes)
Sangirese: Steller and Aebersold (1959)
Serawai (“Middle Malay”): Helfrich (1904)
Sichule: Kähler (1955)
Sikka: Arndt (1933)
South Sulawesi: Mills (1975, 1981)
Sundanese: Kats and Soeriah (1933)
Tana Ai (East Flores): Lewis (1988)
Tetun: Morris (1984)
Toba Batak: Van der Tuuk (1971), Warneck (1977)
Tondano: Wantalangi et al. (1985)
Urak Lawoi’ Malay: Hogan (1988)
Yamdena (Tanimbar): Drabbe (1932b)
NEW WORDS FOR A NEW WORLD

BRUCE BIGGS

1. INTRODUCTION

This paper looks at one language's response to a new and unfamiliar environment. It considers aspects of environment and culture that did not change very substantially, and also dramatically changed aspects (including total absence of old features), and for each case considers the lexical developments that followed. Most of the data I have used come from the POLLEX file.¹

Change in the environment forces change of culture and, presumably, language. I will look at the vocabulary of canoe culture (which persisted in New Zealand) and coconut culture (which was lost).

New Zealand would seem to provide a laboratory for the study of lexical innovation and change. It was settled a thousand years ago, possibly by a single canoe, and, for eight hundred years was, as far as we know, not in contact with any other language. Importantly, dictionary resources for New Zealand Maori are excellent.²

The first settlers faced an environment that was very different from the homeland. The first settlers came from a small, tropical island, of restricted flora and land fauna, to a large, temperate mainland where the familiar flora was replaced by the strange and luxuriant diversity of the New Zealand bush. The New Zealand avifauna was also more plentiful than that of Eastern Polynesia. On the coast a great tidal range replaced the two or three foot tides of lower latitudes resulting in enriched inter-tidal fauna. Sea mammals, including large seal rookeries, were common and beachings of whale pods were frequent.

The geographical and climatic environment was very different. They came from a cluster of small islands to a mainland with lakes, large rivers, snow-capped mountains and active volcanoes, none of which featured in the homeland.

¹ POLLEX is an ongoing research programme whose aims include the detailed reconstruction of the lexicons of Proto Polynesian and its subgroups. A number of people have contributed to POLLEX over the years. Those active at present are Bruce Biggs, Ross Clark and Peter Ranby. The POLLEX file now contains about 4,000 reconstructions. The material contained may be quoted or used for research purposes but as the file is being revised and added to continually, all acknowledgments should indicate the date of the electronic copy or printout that is being quoted. Correspondence re POLLEX may be addressed to Bruce Biggs, Maori Studies Department, University of Auckland, Private Bag, Auckland, New Zealand.

² The main dictionary is William’s Dictionary of the Maori language, the first edition of which, by William Williams, was completed by 1838, though it was not published until 1844. Six subsequent editions by the son and grandson of the original author and then by Maori committees have greatly enlarged the original, although post-contact borrowings from English and other languages are still excluded.

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We speak of reducing a language to writing. The task facing the Maori ancestors was that of reducing a new environment to language, by naming its features. One can think of a number of ways of going about this, including: (1) coining new words, (2) assigning new meanings to old words, and (3) borrowing words from other languages.

Choice (3), the preferred method for most modern languages, English in particular, was ruled out, because there were no other languages to borrow from.

Choice (1) is, I suspect, relatively uncommon, especially ab initio. The word ‘gas’ was ‘invented’ by the chemist Van Helmont but was suggested by Latin chaos or Greek khaos. The word ‘quark’ looks like an invention and perhaps it is. It first occurs in James Joyce’s Finnegans wake (1939).

There are a lot of Maori words without etymologies but, except for a few onomatopoeic items such as korukoru ‘turkey’, it is difficult to show that any of them were invented. Tahitian contains many lexical innovations, including items of basic vocabulary, but it seems that they are generally semantic modifications of existing words, or borrowings from neighbouring Polynesian languages such as Marquesan. The unfamiliar vocabulary found in Tuamotuan is probably to be explained similarly.

However, coined words have become quite common in English with the current fad for lexicalising acronyms. Computerese provides many examples (ascii, ebcdic, fifo, and my favourite, wysiwyg). Computers make it easy to generate all acceptable words in a language; you can then assign meanings to shapes that are unused. Cleve Barlow recently made use of this device to coin linguistic terminology for Maori.3

Choice (2), assigning new meanings to old words, was widely used by the Maori ancestors. I have discussed in some detail its application to plant terminology in other papers.4

A variation on Choice (2) occurs when a qualifier is added to an existing term. White colonists practised this in New Zealand (e.g. White Pine, New Zealand Honeysuckle, Long-tailed Cuckoo). The physicists, with their rapidly changing theoretical environment, now have up quarks, down quarks, strange quarks, top quarks and bottom quarks.

The Maori ancestors used this device extensively. The name of the Beach Hibiscus of Polynesia (PCE *fau)5 was used in New Zealand with appropriate epithets, to name several new trees, whau-ama ‘ourigger *fau’, *hou-heri ‘tying *fau’, hou-para ‘rubbishy *fau’, whau-paku ‘small *fau’.

Pandanus (*fara) does not grow in New Zealand but plants with similarly elongate leaves were named whara-riki ‘little *fara’, whara-nui ‘big *fara’, hara-keke ‘? strong *fara’.

Polynesian also had at least two grammatical devices to apply to this kind of innovation, reduplication, and prefixation of poo- or koo-, both of which seem to have had the meaning ‘pseudo’ or ‘-like’. New Zealand’s first settlers made extensive use of them, sometimes in combination.

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4 See Biggs (1990b, 1991).
5 As the first settlers were from the Cook Islands or French Polynesia, all my starred forms are as reconstructed for Proto Central Eastern Polynesian (PCE) unless otherwise noted.
(Koo)wharawhara ‘Collospermum sp.’, kohekohe (‘Dysoxylum sp.’ < *kofe ‘bamboo’), *koo-hutuhutu (‘New Zealand fuchsia’ < *futu ‘Barringtonia’), koo-kihi (‘New Zealand spinach’ < *kisi ‘Oxalis sp.’).

2. THE SAME BUT DIFFERENT

Any migration will present the migrants with new features that are similar to but not identical with things at home. An unmodified name will often be used in such cases. The oysters of New Zealand were sufficiently like the oysters of tropical Polynesia to be given the unmodified designation of tio < *tio.

If the new environment is less diverse than the old, some of the old vocabulary may be discarded and lost. If it is richer, however, the old vocabulary may prove insufficient.

The history of Polynesian plant names provides an interesting case. The Fiji, Samoa, Tonga region has a rich flora. Somewhere in this area was the homeland in which the Proto Polynesian language was spoken and we may be sure that the Proto Polynesians had a vocabulary matching the richness of their environment. More than 180 Polynesian plant names have been reconstructed.

As the ancestors moved eastwards across Polynesia the flora had became ever sparser in the sense that there were fewer different species. But those that were found in the eastern islands were, for the most part, the same as, or similar to those already known and the nomenclature was to hand. In the new environment fewer plant names were needed and the names for plants not found were finally forgotten.

When the Eastern Polynesian discoverers reached New Zealand they entered once more a region of floral diversity whose richness was matched only by its unfamiliarity. Now their nomenclature was to hand. In the new environment fewer plant names were needed and the names for plants not found were finally forgotten.

Plant names from Eastern Polynesia with no reflexes in New Zealand include: PPN *alo-alo ‘a tree (Premna sp.)’, PPN *fano ‘a tree (Guetardia speciosa)’, PEO *fao.1 ‘a tree (Ocrhis sp.)’, PPN *kakamika ‘shrub sp.’ (Ageratum sp.), PN *kape.1 ‘a plant (Alloacia macrorrhiza)’, OC *kaute ‘a flowering shrub (Hibiscus rosa sinensis)’, AN *lala.1 ‘tree (Vitex sp.)’, PN *mala.1 ‘tree sp.’, PN *maapele ‘a tree (Trema sp.)’, PN *mutic ‘grass sp.’, FJ nuka-nuka ‘a shrub (Decaspermum sp.)’, PN *pase ‘plant sp.’, PN *patae ‘tree sp. (Erythrina indica)’, PN *tigie ‘coastal shrub sp. (Pemphis acidula), CP qoa ‘Punyan tree (Ficus sp.)’, PN *sea.1 ‘a tree (Parinari rum insulare)’, PN *siapo ‘Paper Mulberry plant (Broussonetia sp.)’, bark-cloth’, AN talie.1 ‘a tree (Terminalia sp.)’, FJ tamanu ‘a tree (Calophyllum sp.)’, PN *tamole ‘a fragrant plant (Portulaca sp.)’, PNP *tau-sunu ‘tree heliotrope (Tournefortia argentea)’, PN *to.1 ‘tree sp., (Alphitonia zizyphoides)’, PN *toto.2 ‘a tree (Euphorbia

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6 Proto Polynesian plant names not found in Eastern Polynesia or New Zealand include PPN *ago ‘(Curtuma sp.)’, *aste ‘a shrub (Wedelia sp.)’, *atiu ‘a vine (Cucumis sp.)’, *faatai ‘a parasitic creeper (Cassutha filiformis)’, *fau-qiqo ‘a plant (Hibiscus sp.)’, *fesi ‘(Intsia bijuga)’, *fetaq ‘(Calophyllum sp.)’, *filimoto ‘a tree (Flacourtia sp.)’, *fiso ‘(Saccharum sp.)’, *kalaqapusi ‘(Acalypha grandis)’, *kanume *kanume ‘a tree (Diospyrus sp.)’, *kawa-sasa ‘a creeper used to poison fish’, *lapaka-li ‘a tree (Aglaia sp.)’, *lekileki ‘Puzellenut (Xylocarpus sp.)’, *logologo ‘a palm (Cycas cirencialis), *makai ‘a tree’, *maalili ‘a tree (Terminalia sp.)’, *mana-ui ‘a tree’, *mapa ‘a tree (Diospyrus sp.)’, *mata-moso ‘a plant with red seeds’, *mosokoli ‘a tree (Canga odorata), the tree and name have been imported into Rarotonga’, *nata ‘a tree (Burckella obovata)’, *gasu ‘(Scaevola sp.)’, *ola ‘a shrub’, *pau ‘a tree’, *pipi ‘(Hernandia sp.)’, *saakato ‘fern sp.’, *salo ‘tree nettle (Laportea harveyi)’, *sana ‘Job’s Tears (Coix sp.)’, *taka-taka ‘a grass’, *tama-tama ‘a plant’, *tane-tane ‘a shrub’, *tapu-toki ‘a tree (Aectryon sp.)’, *tata-nja ‘a tree (Accacia sp.)’, *timi ‘(Curuma sp.)’, *tono ‘(Centella asiatica)’, *waalai ‘a liana’.

7 Plant names from Eastern Polynesia with no reflexes in New Zealand include: PPN *alo-alo ‘a tree (Premna sp.)’, PPN *fano ‘a tree (Guetardia speciosa)’, PEO *fao.1 ‘a tree (Ocrhis sp.)’, PPN *kakamika ‘shrub sp.’ (Ageratum sp.), PN *kape.1 ‘a plant (ALocacia macrorrhiza)’, OC *kaute ‘a flowering shrub (Hibiscus rosa sinensis)’, AN *lala.1 ‘tree (Vitex sp.)’, PN *mala.1 ‘tree sp.’, PN *maapele ‘a tree (Trema sp.)’, PN *mutic ‘grass sp.’, FJ nuka-nuka ‘a shrub (Decaspermum sp.)’, PN *pase ‘plant sp.’, PN *patae ‘tree sp. (Erythrina indica)’, PN *tigie ‘coastal shrub sp. (Pemphis acidula), CP qoa ‘Punyan tree (Ficus sp.)’, PN *sea.1 ‘a tree (Parinari rum insulare)’, PN *siapo ‘Paper Mulberry plant (Broussonetia sp.)’, bark-cloth’, AN talie.1 ‘a tree (Terminalia sp.)’, FJ tamanu ‘a tree (Calophyllum sp.)’, PN *tamole ‘a fragrant plant (Portulaca sp.)’, PNP *tau-sunu ‘tree heliotrope (Tournefortia argentea)’, PN *to.1 ‘tree sp., (Alphitonia zizyphoides)’, PN *toto.2 ‘a tree (Euphorbia
Of 183 Proto Polynesian plant names 45 are not found in Eastern Polynesia. Of the 136 found in Eastern Polynesian languages two-thirds (86) have reflexes in Maori. A very few (5) apparent Maori reflexes are otherwise unattested for Eastern Polynesia. Perhaps the most interesting of these is *pere 'a shrub (Alseuosmia sp.)' < PPN *pele 'a shrub with edible leaves (Hibiscus manihot)' which is absent from the eastern islands.

The Maori ancestors often modified old names, either grammatically or by qualifiers, and the same old name was sometimes assigned to several new species. *Maire, either alone or with a descriptive epithet, denotes at least six different plant species (in some cases species of different genera) in New Zealand Maori. In this extreme case either one of two features of the original plant (perfumed leaves or leaf shape) appears to have motivated the application of the name.

Descriptive phrases were sometimes used to name unfamiliar plants, such as waewaekoukou ‘owl’s foot’ and ahi-koomau ‘fire retained’ (a tree whose wood was used to make fire), and *huruhuru-o-Hine-nui-ite-poo ‘pubic hair of the goddess of death’ (a spiny herb).

I have not estimated how many plant species were named in New Zealand, but a count of the entries under a plant, a tree, a fern, a grass, a shrub, in Biggs (1990a) was well over 700.

3. QUITE DIFFERENT

In New Zealand some aspects of the physical environment were new to the founding population. Hills (*puke) and mountains (*maunga) were familiar and required no lexical adjustments, but the frost and snow that sometimes capped them was not. It was natural to call these new features huka-papa ‘flat foam’ and huka-rere ‘flying foam’.

After leaving the Western Polynesian homeland the Eastern Polynesians had lived in an environment relatively free of seismic disturbance. By migrating to New Zealand’s shaky isles they had once more entered the ring of fire, where thermal sites, including active volcanoes, littered the landscape and earthquakes were frequent.

The name of the earthquake god *Mafuike had been retained in Eastern Polynesia, but in the absence of earthquakes he had become Mahuika, the god of fire. A new earthquake god, Ruamoko, or Ruai-mokoroa, was created in New Zealand. Significantly, he is the youngest of the 70 sons of Rangi and Papa, still at the breast when the sky father and earth mother were forced apart.

The Maori vocabulary of seismic activity was never very great, but it was all innovated in New Zealand: huu ‘to erupt (of a volcano)’ < *suu ‘to fart’; ruu ‘to quake (of the earth)’ < *luu ‘shake’; puia ‘geyser’ < *puqi ‘to smell (intr.)’; ngaawhaa ‘boiling spring, sulphur’ < *ngafaa ‘burst, break open (intr.)’; rangitoto ‘cinder, scoria’ < *rangi ‘sky’, *toto ‘blood’; wai-ariki ‘thermal bath, spring’ < *wai ‘water’, *ariki ‘chief’.

Lakes and large rivers were non-existent in the Eastern Polynesian homeland and the old word (PPN *lano) for the lakes of Western Polynesia had been lost. But enclosed bodies of water were familiar, so *roto ‘lagoon’ became ‘lake’, or, in those areas of New Zealand without lakes, ‘swamp’. The largest lakes were dignified as moana ‘sea’. For the large New
Zealand rivers *wai-tafe ‘river, stream’ < *wai ‘water’, *tafe ‘flow’ was replaced by *awa < *awa ‘channel, reef pass’. ‘River estuary’ was added to the reference of *faa ‘bay’.

4. DIRECTIONS

In a discussion of “the four cardinal directions, north, south, east and west” Cecil H. Brown (1982:1) points out that “careful comparative study...reveals little basis for proposing any great antiquity for any cardinal direction term”. No cardinal directions have been reconstructed for Proto Austronesian, for example.

Most discussion of compass direction starts with the assumption that the 360 degrees of the horizontal plane will be divided equally into four parts. But why must it be four? It does seem natural for each direction to have a reciprocal, so five or seven directional terms would be unlikely, but why not six, or just two? And if more than two, why must the subtended sectors be equal?

A minimum of two directions might be expected. The rising and setting of the sun in relatively fixed positions is pretty striking, and in fact, when we examine the reconstructed Polynesian glosses we find just two that refer unequivocally to compass direction, ‘east’ *sasake, and ‘west’ *hihifo, and *lalo. The first two terms may be related to *hake ‘upwards’ and *hiho ‘downwards’. But neither *sasake nor *hihifo is reflected in any Eastern Polynesian language. Moreover, the terms are confined to Metro-Polynesia and may have been innovated in that area, as Brown has suggested. As for *lalo < PMP *dalem ‘inneres, tiefe’, it is literally ‘downwards’ in Polynesian (? downwind, down to the underworld (spirits of the dead go westwards), down where the sun goes).

‘East’ and ‘west’ have not been reconstructed for Eastern Polynesian. On islands, the so-called cardinal directions are hardly necessary, as those who live in Honolulu know. Locations and directions there are indicated by the terms *mauka ‘towards the centre of the island’, *makai ‘towards the sea’, Ewa ‘towards Pearl Harbour’ and Diamond Head ‘towards Diamond Head’.

It is possible that in spite of their vaunted navigational skills (as opposed to their voyaging capabilities, which are unquestioned) Polynesians had no fixed-point cardinal directions. After all, their universe lacked such: as you move round on a small island your orientation is constantly changing; the sun moves across 47 degrees of horizon between the summer and winter solstices; and, in the absence of a south polar star, there is no fixed point in the southern night sky.

The Polynesian navigators may have had no abstract geographical model at all, but used a dead reckoning navigational system that relied solely on such concrete phenomena as winds, wave patterns, horizon stars, zenith stars and the path of the sun.

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8 But Andrew Pawley tells me that the Kalam of the Kaironk Valley (Western Highlands, Papua New Guinea), have just three directions, up-valley, down-valley and cross-valley.
9 Brown relates these terms to the rising (up) and the setting (down) of the sun. I have always felt that for Polynesia and Fiji they refer conceptually to ‘upwind’ and ‘downwind’.
11 It is interesting to consider what happens to this general Polynesian system when the land is a motu on a ring atoll. I have not found a good description of such a situation but note that in Kapingamarangi dai is ‘lagoonwards’ and in Tokelau uta refers to ‘the islets on the far side of the lagoon’.
Except for *sasake and *hihifo, all reconstructions that contain cardinal directions in their glosses were probably wind names rather than directions. The winds that concern Polynesians who live south of the equator are the prevailing trade winds from the south-easterly quarter and the storm winds from the north-westerly quarter. The higher level reconstructions in POLLEX are PNP *(faka)tiu ‘wind from a westerly quarter’; PPN *toga ‘south wind’; PPN *laki ‘the westerly quarter; wind from that quarter and weather associated with it’; PPN *tokelau ‘wind from a northerly quarter’. At a lower level we have PCE *uru ‘wind from a westerly quarter’; PCE *malagai ‘wind from a south-easterly quarter (the trade wind)’.

In New Zealand, a country of strong winds, predominantly from the westerly quarter, but with no seasonal regularity, reflexes of all of these wind names have been retained, but with some semantic changes. On a long narrow land, lying approximately at right angles to the path of the sun, compass direction became more salient than wind direction, and approximated the Western model: raki came to mean the direction ‘north’; uru became ‘west’ (and the west wind became hau-aa-uru ‘wind of the west’); marangai became ‘rain bearing wind’ (which varied from district to district), ‘east, east wind’, ‘north, north wind’ and, in one dialect, ‘rain’; and tonga became ‘south, south wind’. ‘East’ for which no proto-eastern reconstruction can be determined, is Maori raa-whiti < raa ‘sun’ + whiti ‘spring up’ (cf. Hawaiian hikina). Tokerau became a district in the north-east of the country, losing its directional reference. In addition, and in accordance with an almost universal metaphor, the words for ‘above’ and ‘below’ were applied to direction, but with an unusual twist: ‘north’ is ‘below’ (raro) and ‘south’ is ‘above’ (runga).

For the inhabitants of isolated islands the sea is the sea. For mainland dwellers things are different. The sea on different coasts tends to be distinguished terminologically. In New Zealand four seas, matching the four winds) were Te Tai Tonga ‘the southern sea’, Te Tai-raawhiti ‘the eastern sea (sea of the risen sun)’, Te Tai hau-a-uru ‘the sea of the west wind’ and Te Tai Tokerau ‘the north-east sea’.

5. CANOE CULTURE

The difference between the sea and land environments of Polynesia and New Zealand gave rise, over a period of time, to quite marked changes in material culture. Take canoes, for example.

The geography of Polynesia, small islands or archipelagoes separated by hundreds of kilometres of open sea, all set in low latitudes subject to the trade winds, provided a celestial, climatic and geographical environment suitable for, and providing, an incentive to develop or extend an ocean-voyaging capability.

Ocean-going canoes had to rely on sailing rather than paddling because human metabolism does not allow for long man-powered voyages. They had to survive heavy seas, so the hulls were fashioned with tumblehome and were decked over. They resembled slit cylinders rather than open boats.

Two-way sailing requires an ability to beat into the wind, which in turn requires lateral stability of the craft. So the favoured vessel of Polynesia was a sailing canoe which was given the required stability by having two hulls or an outrigger.
New Zealand is situated in higher latitudes outside the range of the trade winds and in the unpredictable climate and stormy seas of the roaring forties. It is isolated from all other land. There is, in effect, nowhere else to go, so ocean voyaging ceased and navigational expertise was lost. Maori astronomical belief, for example, was entirely concerned with measuring the seasons and ‘predicting’ weather, and not at all with direction finding.

The effect of all this on boat-building and voyaging was profound. Vessels were now paddled rather than sailed, because human paddlers were able to power craft among New Zealand’s closely clustered islands. Moreover, much of the travelling by canoes was now on long, navigable (but narrow) rivers, where sailing was impracticable and narrow beam an advantage. Lateral stability was no longer required, so outriggers and catamarans were gradually abandoned. The enormous softwood trees of New Zealand allowed the dubbing-out of very large dugouts which reduced the need for tumblehome and deckings. (The New Zealand sourced outriggers and foredecks and at least one hull exhibiting tumblehome are all ancient pieces from swamp deposits surviving from an era before these changes had been made.)

What of the vocabulary of canoe culture? Was it retained or lost? Well, of 13 words which were almost certainly in the vocabulary of the Maori ancestors, 12 were retained but, as in the case of plant vocabulary, sometimes with altered meanings.

The words for stern (*noko), topstrakes (*oa), paddle (*foe), keel (*takere), bilge (*riu) and canoe itself (*waka) were all retained, with unchanged meanings. So was *saumi ‘forward section of canoe hull’ and *taumua ‘prow’ though this was more usually called ihu < *isu ‘nose’.

In Polynesia *kiato refers to the booms that secure the outrigger to the canoe. In New Zealand the word refers to the thwarts that spread and stabilised the topstrakes that were a prominent feature of the new canoe architecture. A New Zealand innovation for topstrake was rauawa a multi-morphemic form whose derivation is unclear.

The word for outrigger (*ama) is interesting. By the end of the eighteenth century outriggers were rare in New Zealand. Outrigger canoes were seen on Cook’s voyages to the North and South Islands (Best 1925b:15), and Te Whatahoro is said to have travelled on one in 1853 (ibid). But Polack, who travelled extensively in the north of the North Island in 1814, said, “Outriggers...are unknown in New Zealand” (Best 1925b:17), and this seems to have been generally true by the nineteenth century.

*ama first appeared in Williams’s Maori dictionary (3rd edn, 1871) glossed as “outrigger on the windward side of the canoe” and this meaning seems to have been accepted by Maori ethnographers. But Colenso (1898:35) glosses ama as “the covered or decked forepart of a canoe; the stage or platform between two canoes joined together” and Williams’s 4th edition (1892) adds “thwart of a canoe” to its earlier definition.

12 “They can only sail before the wind, in which direction they move with considerable swiftness” (Summary, Cook’s first voyage, quoted in Best 1925b:9); “Their sail, very seldom used, is a mat formed in a triangular shape” (Furneaux (1773), quoted in Best 1925b:10).

13 “Cook and his companions mention but one double canoe as having been seen (in 1769) on the coast of the North Island, while they saw a considerable number in the south” (Best 1925b:12). Polack, who lived for seven years in the north in the 1830s, said “Canoes are very rarely lashed together; during my seven years’ acquaintance with the country I never saw a single instance of the kind” (quoted in Best 1925b:11).
A search for textual examples of the word yielded the following:

(1) ‘Hei roto koe, hei te ama o to taaua waka.’ Katomo ki roto, kaatahi ka peehia e Maau i te ama, me te waka katoa ki runga ki a ia, aa, ka mate a Irawaru. ‘You go within, into the ama of our canoe.’ He went in and then Maaui pressed down the ama, and the whole canoe on top of him and Irawaru died. (Grey 1928:14)

(2) Koia ia te ama, ko taua mea o waenganui o nga waka. That is the ama, the thing in the middle of the two canoes. (Colenso 1898:35)

(3) He ama anoo te waka, araa, he waka iti nei hei aarai i te ngaru. The canoe had an ama, that is a small canoe to block the waves. (Jones n.d.)

None of these examples indicate clearly that ‘outrigger’ was meant by ama and it seems that the nineteenth century Maior, while remembering the word, was uncertain about its meaning.

*Katea ‘side of canoe opposite outrigger’ was the single item of reconstructed canoe culture vocabulary that was lost. In New Zealand, with the decline and eventual abandonment of outriggers, it no longer had a referent.

6. WEAPONS AND WARFARE

At some time in New Zealand’s past, warfare became culturally prominent. It was based on vendettas maintained over generations, and featured cannibalism and desecration of the enemy dead. The use of missile weapons became rare. The sling, a weapon throughout tropical Polynesia, was not used at all in New Zealand. It has been pointed out that if you wish to secure the body of your enemy, for whatever reason, there is little point in killing him at a distance. Hand-to-hand fighting and skilled weapon-play was favoured.

Weapons unique to New Zealand were developed and their nomenclature is interesting. The names were usually multi-morphemic but with puzzling derivations. Koti-ate (koti ‘cut off’, ate ‘liver’) ‘a broad-headed short club with a slit-like notch in each side’. The function of these notches is unknown. A suggestion that they were used in a complicated method of emasculation would appear to stretch the imagination somewhat, not to mention the sexual anatomy of the victim.

Other examples were waha-ika (waha ‘mouth’, ika ‘fish’) ‘a short bill-hook shaped club’, tewhatewha (tewha ‘garrulous’) ‘a long axe-like club’, taiaha ‘a long and narrow, flat-bladed club or quarter-staff’, hoeroa (hoe ‘paddle’, roa ‘long’) ‘a long, double-curved club, often made from a whale rib’.

The vendetta itself developed a special vocabulary concerned with the obligation of settling an unavenged death. While the death remained unavenged it was said to be ngaro ‘out of sight, hidden’. To avenge a death was to bring it back into view. The appropriate words to use were ranga-a ‘to lever up’, ngaki ‘to clear ground of weeds, etc.’, huke ‘to expose, open (of an earth-oven)’, takitaki ‘to appear’. When revenge had been taken the death was said to be ea, an intransitive verb whose literal meaning was ‘to appear above water (after a dive)’.

My younger son is named Mate-ngaro ‘unavenged death’ after my wife’s father, who was named after his grandfather. We don’t know whose death was unavenged but as my grandson now bears the name, that, at least, persists.
7. THE LOSS OF COCONUT CULTURE

What must have seemed a dramatic, even catastrophic difference from the home environment was the complete absence of the coconut palm, ubiquitous in Polynesia and of great economic importance there.

What happened to the rich terminology of coconut culture? Was it lost in New Zealand or retained with other meanings?

Of 32 pertinent Proto Polynesian reconstructions three-quarters have reflexes in Eastern Polynesia where, in this respect, the environment was little changed. Proto Polynesian terms not reflected in PCE are PPN *faagogo ‘half coconut shell’, *mataqali ‘prematurely fallen nut’, *palalafa ‘butt end of coconut frond midrib’, *quuquu ‘Coconut Crab (Birgus latro)’, *tola(u) ‘central, unopened leaf shoot’. Of the 25 Central Eastern Polynesian terms pertaining specifically to coconut culture only half have reflexes in Maori.

Examples of words that were present in Central Eastern Polynesian but have dropped out of Maori are *tuai ‘grater for coconut meat’, *rooroo ‘spathe of coconut’, *taume ‘spadix of coconut’, *uto ‘sprouting coconut and the spongy pulp it contains’.

Examples of words retained with innovated meanings in Maori are: *niu ‘coconut’ > ‘a divining wand’; *kaka ‘the fibrous mat round the base of coconut fronds’ > ‘fibre, especially that found in edible bracken fern root’; *kaalawa ‘the very strong fibre obtained from the outer skin of the coconut frond midrib’ > ‘a flax line with nooses for bird-snaring’; *niikau ‘coconut frond’ > ‘the New Zealand palm most similar to the coconut palm, but without edible fruit’; *pulu ‘coconut husk’ > ‘plug, cork, bung, to caulk, stuff up’; *sakali ‘mature coconut’ > ‘feast, fish roe, egg yolk’; and *tafaa ‘coconut shell water-bottle’ > ‘calabash made from a gourd’.
AUSTRONESIAN SIBLING TERMS AND CULTURE HISTORY

ROBERT BLUST

1. INTRODUCTION

Proto Malayo-Polynesian (PMP), the hypothetical ancestor of all non-Formosan Austronesian languages, had four sibling terms: (1) *betaw, (2) *ñaRa, (3) *kaka/aka, and (4) *huaji. The first two terms referred to female and male cross-siblings respectively. The last two referred to elder and younger siblings, possibly only those of the same sex. In addition, there is widespread evidence of historically secondary morphemes meaning ‘female/male’ or ‘female/male child’ which replaced the original cross-sibling terms in many languages independently (the ‘cross-sibling substitution drifts’). The unambiguous presence of a cross/parallel distinction in the sibling terminology is culturally significant, as it correlates statistically in synchronic data samples with the presence of descent groups, and in particular with matrilineal descent. The ‘cross-sibling substitution drifts’ have even greater cultural significance, as they are enigmatic unless we assume that PMP speakers practised some form of asymmetric exchange which persisted in many of its descendant communities until the terms for wife-giving and wife-taking groups had been transferred to the male and female cross-siblings respectively. Asymmetric systems of marital alliance survived into the ethnographic present primarily in Sumatra and eastern Indonesia, but were transformed in various ways in virtually all other Austronesian-speaking societies. More generally, in the area of general ethnological method and theory this paper takes issue with several widely-shared assumptions about necessary and sufficient conditions for historical reconstruction, and describes the first reported instance of a linguistic drift that is powered not by structural pressures in the linguistic system, but rather by structural pressures in the system of social organisation.

1.1 THE PROBLEM

Although language families such as Indo-European and Sino-Tibetan have more speakers, Austronesian (along with Niger-Kordofanian) is one of the world’s two largest language families in number of languages (Ruhlen 1987). These languages have a wide geographical distribution in Taiwan, the Philippines, Malaysia, Indonesia, portions of mainland Southeast Asia, Madagascar and a variety of Pacific nations located within the broad geographical

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1 I am indebted to Alice Dewey, Gregory Forth, Rodney Needham and Andrew Pawley for critical comments which led to improvements in an earlier version of this paper. Needless to say, none of these scholars necessarily accepts my premises, methods, arguments or conclusions.

2 Ruhlen (1987) recognises 1,064 Niger-Kordofanian and 959 Austronesian languages. Needless to say, these numbers are meaningful only to the extent that a common definition of ‘language’ and ‘dialect’ is uniformly applied.

regions of Melanesia, Micronesia and Polynesia. As with any large and widely distributed collection of languages or cultures, there is a great deal of linguistic and cultural diversity among the Austronesian-speaking peoples. Since they reflect a common ancestral tradition the differences among these various languages and cultures must have arisen through an accumulation of gradual linguistic and cultural changes over many generations. It is the task of the comparative linguist to reconstruct as much as can be recovered of the language which existed before these changes. Because language and culture are interconnected in sometimes surprising and unexpected ways, the reconstruction of particular linguistic features may, under favourable circumstances, also entail the reconstruction of interconnected features of culture.

Somewhat over a decade ago on the basis of comparative linguistic evidence I argued that early Austronesian (AN) society had ancestor-oriented kin groups (descent groups), matrilateral cross-cousin marriage (hereafter simply ‘matrilateral cousin marriage’), dual divisions and some kind of quadripartite social organisation (Blust 1980b). This point of view was contrary to one expressed in Murdock (1949), but agreed closely with certain features of the reconstruction of “ancient Indonesian” social organisation proposed in 1935 by the Dutch ethnologist F.A.E. van Wouden in a thesis written under the supervision of J.P.B. de Josselin de Jong.

The anthropological debate into which I as a linguist to some extent unwittingly thrust myself is of greater than ordinary interest for at least three reasons. Firstly, Murdock’s ideas on early Austronesian social organisation were one of many spin-offs from his worldwide study of the typology of kinship systems. Even in 1980, over 30 years after they were first expressed, his historical reconstructions of social organisation and change for particular language families remained perhaps better grounded in general ethnological theory than those undertaken by any other contemporary anthropologist. Secondly, the close similarity of my inferences from the linguistic evidence with many (not all) of those expressed by van Wouden was arrived at quite independently, and at a time when the pioneering work of this Dutch scholar was being vigorously re-examined both for its importance and for its shortcomings (Fox, ed. 1980). Thirdly, this disagreement over the narrow details of early Austronesian social organisation can be seen as a test of the larger issue whether ethnology has a comparative method of the same order of reliability as the comparative method of historical linguistics. Indeed, with reference to his “technique of historical reconstruction” Murdock (1949:349) believed that “the most striking confirmation of the method comes from the Malayo-Polynesian stock”.

The evidence that I cited in support of my position in 1980 was of varying value, but central to my line of reasoning (especially as expressed in my Reply) was the history of sibling terminology in Austronesian languages. It was my position then, and it remains my position today that through a comparative analysis of sibling terms alone – without reference to the broader matrix of reconstructed kinship terminology – one can safely reach two

3 The expression ‘early Austronesian’ served as a convenient cover term, since the actual reconstructions varied between two non-contemporaneous protolanguages, Proto Austronesian and Proto Malayo-Polynesian, both of which were explicitly indicated in relation to any given protoform. The same convention, with the same provision, is used in this paper. With regard to the expression “ancient Indonesian”, van Wouden (1968[1935]:86) himself refers to “exclusive cross-cousin marriage and its organisational correlate” as “an ancient culture-element known to all the peoples in the area”. Although he evidently intended this statement to apply only to eastern Indonesia, de Josselin de Jong (1977[1935]:168) called the same features of social organisation “the structural core of numerous ancient Indonesian cultures in many parts of the Archipelago”. 
conclusions: (1) that speakers of a language ancestral to all non-Formosan Austronesian languages had descent groups, and (2) that within the same language community there was a rule of matrilateral cousin marriage, or on the level of the corporate kin group, what Lévi-Strauss (1969[1949]) has called “generalized exchange” (more commonly known today as ‘asymmetric alliance’).

The first of these claims is relatively non-controversial, assuming only that the correlations between type of sibling terminology and type of social structure which Murdock (1968) found to be statistically significant in attested societies should also hold in reconstructed prehistoric societies. Being founded on a statistical, rather than a logical argument, its validity is essentially probabilistic. The second, more iconoclastic claim, has emerged from a synthesis of comparative linguistics and elements of kinship theory that is more abstract, and perhaps more difficult to follow. Unlike the first it is founded on a logical argument, and its validity therefore depends on the usual criteria of compatibility with the primary data, and competitive superiority (based on simplicity and independent motivation) which govern the evaluation of inductive arguments in science generally.

To forestall possible misunderstanding at the outset, I wish to emphasise that my inference of PMP asymmetric alliance is based not on an assumed correlation between reconstructed terminology and behaviour, but rather on an assumed correlation between semantic change and behaviour. I will distinguish these types of relationship between language and behaviour as ‘horizontal’ and ‘vertical’. The first approach (followed, for example, by Murdock, and used here only for my claim of PMP descent groups) is essentially a projection of relationships in a synchronic system onto a reconstructed language. The second approach, which is an essential part of the practice of historical linguistics, has a potential for the solution of diachronic problems in social and cultural anthropology which has never been fully appreciated and has rarely been exploited by anthropologists. Its use is illustrated in, for example, Blust (1986-87) and (1987a).

This paper is devoted to a broad comparative treatment of Austronesian sibling terms, with special reference to what I call ‘the cross-sibling substitution drifts’. The problem is complex, and requires the resources both of comparative historical linguistics and of the anthropological study of kinship. For this reason I do not have the luxury of assuming a

4 James J. Fox (pers.comm.) has taken issue with my use of the expressions descent group and corporate kin group as interchangeable labels. After some consideration of his objections I fail to see any basis for them (one might quibble similarly with my interchange of ‘structure’ and ‘organisation’). The distinction that I wish to make separates systems of social organisation in which kin group membership is defined by lateral extension from systems of social organisation in which it is defined by common descent from an apical ancestor. It is customary in the anthropological literature to refer to kin groups of the latter type as descent groups, and because they persist through time despite changes in their membership they are corporate. Ego-centered bilateral kin groups such as Murdock’s bilateral kindred cannot be corporate, since their composition varies with each person in relation to whom they are defined. Further distinctions which may be important to the ethnographer (e.g. corporate kin group vs localised corporate kin group) probably are beyond the means of the comparative method of linguistics to reconstruct, but a reconstruction that is less refined than the ethnographer would like is not therefore to be dismissed as worthless.

5 One might, of course, object that the statistical correlations presented by Murdock are themselves suspect, a criticism that has been raised in particular by British scholars (e.g. Leach 1961). However, the objections to Murdock’s methods that have been raised to date fail to explain how a compounding of largely random errors could produce consistent patterns of correlation cross-culturally. Like Nerlove and Romney (1967) I take the results of Murdock (1968) as given. While these results themselves may be controversial, the uniformitarian view that statistically significant correlations which hold in modern cultures also held in prehistoric cultures has been to date almost completely free from dissent.
shared intellectual background, as is normally the case when one writes for others in one's own academic discipline. Serious gaps in communication between anthropologists as a group and linguists as a group were painfully obvious in at least one recent attempt by an anthropologist to apply comparative techniques to the reconstruction of kinship systems (Marshall 1984), and I hope by supplying the necessary background to avoid such problems here.

2. ANTHROPOLOGICAL PREREQUISITES

Although some important contributions were made by earlier scholars, it is perhaps fair to say that the anthropological study of kinship received its major initial impetus from the publication of Lewis Henry Morgan’s ‘Systems of consanguinity and affinity of the human family’ (1870). In this work and in his sequel, *Ancient society* (revealingly subtitled *Researches in the lines of human progress from savagery through barbarism to civilization*), Morgan was concerned with developing sociological explanations for the differences between types of terminological systems. Morgan saw a fundamental difference between what he called “classificatory” systems, which he associated with less advanced societies, and “descriptive” systems, which he associated with more advanced (viz. European) societies. Morgan’s general evolutionary schema, his arbitrary distinction between classificatory and descriptive systems, and many of his sociological explanations for the composition of kin groups now appear fanciful, but his belief that it is possible to correlate types of terminological systems with underlying social and economic determinants has been shared by subsequent anthropologists, who have developed it in increasingly sophisticated forms.

Kinship theory has taken enormous strides since Morgan’s pioneering work, and it would be a daunting task to review even the major contributions here. I touch only briefly on a few points that are particularly relevant to the argument that follows.

2.1 TERMINOLOGY

Kinship relations are commonly expressed by a set of abbreviations which isolate a single, universally definable category in relation to a given individual, designated as Ego. Such universally-defined kin categories are the primitives of kinship theory, since they are independent of the kinship categories of any particular language. When combined to form language-particular configurations which are mapped onto a single morpheme they become genealogical categories, that is, culturally-defined categories of relationship. In the ensuing discussion expressions such as ‘both cross-cousin’ will refer to primary universal categories unless there is specific indication to the contrary (thus one is justified in speaking of ‘both cross-cousins’ in symmetric alliance even though there may be a single culturally-recognised category which covers both universal categories). The abbreviations used in this paper for universally-defined kin categories are as follows:
F = father
B = brother
S = son
H = husband
m = male
m.s. = man speaking
// = same sex (parallel)
e = elder
Sb = sibling
M = mother
Z = sister
D = daughter
w = wife
f = female
w.s. = woman speaking
x = opposite sex (cross)
y = younger

Other kin categories are represented by combinations of these elementary terms: MBD = mother's brother's daughter, FZS = father's sister's son, eSb = elder sibling, xSb = sibling of the opposite sex, etc.

Some other distinctions that will be useful in this paper are:

consanguines: persons related by culturally recognised common descent;
affines: persons related by marriage;
lineal kin: kin related in a direct line, as grandparents, parents and children;
collateral kin: all consanguines other than lineal kin, as uncles and aunts, siblings, cousins, nephews and nieces;
descent group: a group of kin defined in relation to a common ancestor – such groups are corporate in the usual sociological sense, that is, they maintain their identity through time despite changes in individual membership;

lineage: the most commonly recognised form of descent group (often a lower-order descent group whose members can trace the links and line of common ancestry, as opposed to the ‘clan’, where they cannot);
exogamy: a prescribed rule of marriage outside Ego’s descent group (marriage within the descent group is culturally-defined incest, whether with a close biological relative or not);
cross-cousin marriage: a culturally expressed preference for a male Ego to marry a woman who belongs to the kin category MBD or FZD. This takes three forms: patrilateral cousin marriage (with FZD), matrilateral cousin marriage (with MBD) and bilateral cousin marriage (with either cross-cousin);
unilineal descent: culturally recognised descent exclusively through one parental line;
patrilineal descent: culturally recognised descent exclusively through the father’s line, which may produce patrilineal lineages, or patrilineages;
matrilineal descent: culturally recognised descent exclusively through the mother’s line, which may produce matrilineal lineages, or matrilineages;
ambilineal descent: culturally recognised descent through either a patrilineage or a matrilineage, dependent upon particular socioeconomic circumstances;
bilateral descent: culturally recognised descent through both parental lines. This is also known as cognatic descent.

As noted by Robin Fox (1967:169) some confusion has arisen in the anthropological literature through use of the terms ‘bilateral’ or ‘cognatic’ to cover two radically different
types of descent reckoning. Firstly, the term has been applied to collections of kin defined in relation to a particular Ego (or better, sibling set). Murdock (1949) calls this type of kin group a *bilateral kindred*. Since individuals do not live indefinitely long, bilateral kindreds cannot persist through time; indeed, at any given point in time the membership of a bilateral kindred is the same only for siblings. It is thus *impossible* for a bilateral kindred to form descent groups.

Secondly, the term has been applied to collections of kin defined in relation to a common ancestor. Fox (1967:172) calls this type of kin group an *unrestricted cognatic lineage*. Unlike the bilateral kindred the unrestricted cognatic lineage *does* include descent groups. In Fox’s words, “what matters is not so much the division into unilineal and cognatic, as the difference between the *ego-focus* on the one hand with its personal ‘groups’, and the *ancestor-focus* on the other with its descent groups”. We will take up this distinction again in section 2.3.1.

2.2 COUSIN TERMS, SIBLING TERMS AND SOCIAL STRUCTURE

Beginning with Kroeber (1909) it has been common practice in kinship theory to analyse systems of terminology into their operative features (much like the use of distinctive features in phonology). Kroeber identified eight such features as operative in kinship systems generally. Murdock (1949:100ff.) reduced these to six by conflating three features which Kroeber distinguished (sex of relative, sex of connecting relative, sex of speaker) to the single feature ‘sex’. Sex of relative requires little explanation, as it is productively employed in English for all relatives except cousins (father : mother; uncle : aunt; brother : sister; son : daughter; nephew : niece, etc.). Sex of connecting relative is inoperative in English, but is needed for those terminological systems that distinguish parallel cousins (children of father’s brother or mother’s sister) from cross-cousins (children of father’s sister or mother’s brother). Sex of speaker is similarly inoperative in English, but is needed (among other reasons) for those systems that distinguish parallel siblings (brother of a man, sister of a woman) from cross-siblings (brother of a woman, sister of a man).

Based primarily on the way in which cross-cousins are classified it has been common at least since Spier (1925) to assign whole terminological systems to a general typological schema. Basing himself solely on North American Indian data, Spier recognised eight general types of kinship system; Murdock (1949:224), drawing on a global sample, recognised eleven, together with various subtypes. For our present purposes the most important types and their definitions, following Murdock (1949:223ff.) are: (1) HAWAIIAN: all cross and parallel cousins are called by the same terms as those used for siblings; (2) OMAHA: FZD and MBD are called by different terms and terminologically differentiated from sisters and parallel cousins, but FZD is terminologically classed with ZD and/or MBD with MZ; and (3) CROW: FZD and MBD are called by different terms and terminologically differentiated from sisters and parallel cousins, but FZD is terminologically classed with FZ and/or MBD with BD. In short, Hawaiian systems of cousin classification include only relatives of Ego’s generation, but do not distinguish lineal from collateral relatives. By contrast, Omaha and Crow systems distinguish lineal from collateral, but group the cross-cousins with kin of adjacent generations (the patrilateral female cross-cousin with ZD in Omaha, but with FZ in Crow; the matrilateral female cross-cousin with MZ in Omaha, but with BD in Crow).
For most of the twentieth century cousin terminology has formed the basis of kinship typologies, and has provided the clearest evidence of statistically significant cross-cultural correlations between kinship terminology and other features of social organisation. Over seventy years ago Lowie (1917:151ff.) drew attention to the seemingly non-accidental correlation between Omaha systems of cousin terminology and patrilineal descent on the one hand, and between Crow systems of cousin terminology and matrilineal descent on the other. This finding was confirmed and placed within a larger explanatory context by Murdock (1949).6

Much more recently, with the appearance of Nerlove and Romney (1967) and Murdock (1968), there has been an emerging awareness that systems of sibling terminology can profitably be arranged in general typological schemas much like systems of cousin terminology, and that statistically significant cross-cultural correlations can be found between the resultant types and other features of social organisation.

Based on a sample of 800 societies from all parts of the world, Murdock (1968) isolated seven types of sibling terminologies, defined by him as follows (number of instances in Murdock’s sample appears in parentheses): TYPE A: The Kordofanian or Undifferentiated Sibling Type. The prevailing pattern is a single term, which may be glossed as ‘sibling’ (69); TYPE B: The Yoruba or Relative Age Type. The prevailing pattern is a pair of terms, which may be glossed as ‘elder sibling’ and ‘younger sibling’ (86); TYPE C: The Algonkian or Skewed Age Type. The prevailing pattern consists of three terms, which may be glossed as ‘elder brother’, ‘elder sister’ and ‘younger sibling’ (74); TYPE D: The Dravidian or Age-Sex Type. The prevailing pattern has four terms, which may be glossed as ‘elder brother’, ‘elder sister’, ‘younger brother’ and ‘younger sister’ (177); TYPE E: The European or Brother-Sister Type. The prevailing pattern has two terms, which may be glossed as ‘brother’ and ‘sister’ (156); TYPE F: The Melanesian or Relative Sex Type. Defined by primary distinctions of relative sex, which may assume one of four essentially alternative forms: (1) two terms, which may be glossed as ‘sibling of the same sex as Ego’ and ‘sibling of the opposite sex’ (80); (2) three terms, glossed as ‘sibling of the same sex’, ‘brother (woman speaking)’ and ‘sister (man speaking)’ (63); (3) three terms, glossed as ‘sibling of opposite sex’, ‘brother (man speaking)’ and ‘sister (woman speaking)’ (32); and (4) four terms, glossed as ‘brother (man speaking)’, ‘brother (woman speaking)’, ‘sister (man speaking)’ and ‘sister (woman speaking)’ (26); TYPE G: The Siouan or Complexly Differentiated Type. Defined by the application of all three distinctions – relative age, sex and

6 Typologies based on criteria other than cousin terminology were developed by Lowie (1928) and Kirchoff (1932), but have been less widely used in the global characterisation of kinship systems. Needham (1962b, 1974:50-61, pers.comm.) denies the validity of Murdock’s correlations on the grounds that the categories compared are artificial, and of little value in determining basic similarities and differences of social structure. Specifically, he argues that Murdock’s coupling of descent principle and type of cousin terminology to define eleven basic types of social structure for all human societies ignores the more fundamental and far-reaching structural consequences of differences in marriage rule and number of descent lines. In this respect he is firmly in the Structuralist tradition of Lévi-Strauss (1969[1949]), and I am in complete sympathy with his views. However, these criticisms have no bearing on the present argument, which does not depend in any way on the acceptance of Murdock’s eleven types of social structure, or even on the acceptance of such widely acknowledged terminological categories as ‘Crow’, ‘Omaha’, ‘Iroquois’, ‘Hawaiian’ and the like. To affect the present argument Needham’s criticism would have to demonstrate that the notions ‘descent group’ and ‘relative sex’ are ill-defined, and of no utility to cross-cultural studies. Even if he should succeed in this, the criticism would affect only my argument for PMP descent groups, not my argument for PMP asymmetric exchange, which is supported by evidence of an entirely different kind.
relative sex – to such an extent as to prevent recognition of any possibly more basic pattern (37).

Perhaps the most important contribution of Murdock’s paper is its attempt to establish what he calls “functional determinants” of terminological patterns. For the first of these determinants Murdock examines the correlation of rule of descent with type of sibling terminology, and reaches the following conclusions: (1) ambilineal descent appears especially conducive to the emergence of sibling terms of Type F; (2) bilateral descent appears relatively conducive to Types B, D and G, and reveals a negative association with Types A and F; (3) matrilineal and double descent appear especially conducive to Type F; (4) patrilineal descent appears particularly conducive to Type E; and (5) except for differences in Types E and F, matrilineal and patrilineal societies show an almost identical profile, contrasting at almost every point with the profile of bilateral societies. For the second determinant he examines the correlation of type of sibling terminology with type of cousin terminology, and concludes (p. 14) that “the types of the two subsets vary almost completely independently”.

2.3 PAST VIEWS OF EARLY AUSTRONESIAN SOCIAL STRUCTURE

Over the past seven decades a number of anthropologists have attempted to reconstruct the major outlines of early Austronesian social structure, and have reached very different conclusions. The lines of division between these conclusions are perhaps most clearly drawn with regard to two sets of questions: (1) Were descent groups present? (2) If cross-cousin marriage was practiced was it symmetric (both cross-cousins), or asymmetric (only the matrilateral cross-cousin)?

2.3.1 DESCENT GROUPS OR NOT?

Kroeber (1919) compared the kinship terminology of various Philippine ethnic groups and reached the following conclusions about early Philippine society: (1) no distinct cousin terms could be reconstructed; (2) there were only two sibling terms, ‘eSb’ and ‘ySb’; (3) descent was bilateral, with no lineages present; and (4) there was no form of preferential marriage.

Murdock (1949:349ff.) reached a similar conclusion for the Austronesian-speaking peoples as a whole, maintaining that “the original Malayo-Polynesian speaking community had a social organization of Hawaiian type”. By this Murdock (p.228) means a society “possessing cousin terms of Hawaiian type and lacking exogamous unilinear kin groups. In addition, it is characterised by the exceedingly frequent appearance of limited polygyny, the bilocal extended family, generation terminology for aunts and nieces, bilateral extension of incest taboos, and bilateral kindreds or demes”. Murdock’s conclusions about Austronesian as a whole thus agree explicitly with Kroeber’s conclusions about early Philippine society in regard to points (1), (3) and (4).

More recently James J. Fox (1988b) has reviewed Kroeber’s arguments, and reached conclusions similar to those of both Kroeber and Murdock (although he considers only island Southeast Asia). In particular, Fox generalises Kroeber’s point (3) to island Southeast Asia as a whole, and he argues (p.42) that “the regional development of lineal systems may
have begun to develop in the southern Philippines and became more elaborated in the Indonesian islands, particularly in eastern Indonesia”.

A strikingly different reconstruction of early Austronesian social organisation was proposed by the Dutch social anthropologist F.A.E. van Wouden in 1935. In it he used data for a number of societies in eastern Indonesia, drawn both from the domain of kinship and from the domain of mythology to posit an original system of “circulating connubium” or marital alliance between descent groups which was realised through matrilateral cousin marriage. Van Wouden’s general structural model, which has been extensively criticised by subsequent scholars (Fox, ed. 1980), has many points of contact with that of Lévi-Strauss (1969[1949]).

To summarise, van Wouden claimed that a community ancestral to most of the societies of eastern Indonesia possessed descent groups (or lineages), and a system of political alliance founded on matrilateral cousin marriage, while at least Murdock (1949:349-350) and Fox (1988b) have denied that early Austronesian society had either of these features. What can linguistic comparison contribute to a resolution of this debate? Murdock (1968) has firmly established a statistically significant correlation between Type F sibling terminology (“defined by primary distinctions of relative sex”) and lineal, particularly matrilineal, descent. Moreover, he notes (p.12) that “bilateral descent” is negatively associated with Type F terminology. Murdock (1967:49) distinguishes bilateral descent based on “Ego-oriented bilateral kin groups or categories” from bilateral descent “with reported or probable quasi-lineages”, but in his 1968 paper he fails to indicate which type of bilateral descent he means. Even without further clarification regarding this point, however, it is clear that Type F sibling terminology has a statistically well-established cross-cultural association with the presence of descent groups. If it could be shown that a reconstructed language had Type F sibling terminology it would follow that speakers of that language probably traced descent through some form of lineage system, most likely through matrilineages.

2.3.2 SYMMETRIC OR ASYMMETRIC ALLIANCE?

Van Wouden’s reconstruction of eastern Indonesian social organisation posited a system of “asymmetric connubium”, by which he meant a culturally favoured or expected type of marriage between a man and his classificatory mother’s brother’s daughter. In his view (1968[1935]:87) matrilateral cross-cousin marriage was “not merely a popular form of marriage within a narrow circle of consanguineous kin, but...the logical expression of a systematic communication of women among larger social groups”. A more general model of this type of social organisation (called “generalized exchange”), in which matrilateral cross-cousin marriage is viewed as the foundation of sociopolitical alliances, was developed by Lévi-Strauss (1969[1949]), who observed that minimally such a system requires three exogamous groups (so that no group, A, is both wife-giver and wife-taker with another group, B). Although van Wouden explicitly recognised the same theoretical relations, he reconstructed a system of asymmetric alliance for the societies of eastern Indonesia in which not three, but rather four groups participate, and he further arranged these in a “double two-phratry system” (p.92ff.).

Although it was first pointed out by J.P.B. de Josselin de Jong and van Wouden in 1935, Needham (1962a, ed. 1973) in particular has demonstrated that systems of asymmetric alliance are not confined to the regulation of marriage, but tend to form total conceptual
orders in which material, social and cosmological notions are encompassed under a unifying dualistic schema. Among the Purum, a Tibeto-Burman-speaking group of Manipur, eastern India, for example, this schema of dual symbolic classification includes, but is not confined to, the following categories:

**TABLE 1: PURUM DUAL SYMBOLIC CLASSIFICATION (after Needham 1962a)**

<table>
<thead>
<tr>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affines</td>
<td>Kin</td>
</tr>
<tr>
<td>Wife-takers</td>
<td>Wife-givers</td>
</tr>
<tr>
<td>Inferior</td>
<td>Superior</td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Below</td>
<td>Above</td>
</tr>
<tr>
<td>Earth</td>
<td>Sky</td>
</tr>
<tr>
<td>Bad death</td>
<td>Good death</td>
</tr>
<tr>
<td>Profane</td>
<td>Sacred</td>
</tr>
</tbody>
</table>

Strikingly similar systems of dual symbolic classification have been reported for a number of Austronesian-speaking societies in Indonesia, including the Toba Batak of Sumatra (Vergouwen 1964[1933]), the Atoni of Timor (Cunningham 1964; Schulte-Nordholt 1971:407ff.), the Tetun of Timor (Hicks 1976:44ff., 108), and the Kambera of eastern Sumba (Forth 1981:37-44). Indeed, the classic essay of Hertz (1973[1909]) suggests that there is a universal dualistic conceptual schema which differs only in particular details from one society to the next. Such schemas appear to be found in societies with a wide range of marriage systems, but when they co-occur with systems of matrilateral cousin marriage they assign wife-takers to the category that includes ‘left’ and ‘female’ and wife-givers to the category that includes ‘right’ and ‘male’.

Despite van Wouden’s strong emphasis on the ‘original’ character of asymmetric systems, not all of the societies of eastern Indonesia are asymmetric. As noted in the contributions edited by Fox (1980), although virtually all of the societies of eastern Indonesia practise some form of marital alliance between descent groups, there is an exuberant and sometimes perplexing variation in the form that such alliance systems take. Needham (1967, 1984) has argued, contrary to van Wouden, that the original form of social organisation in eastern Indonesia was based not on asymmetric alliance, but rather on symmetric alliance. Aberle (1980) and Barnes (pers.comm.) suggest much the same, and Forth (1990) has explicitly argued for an evolution from symmetry to asymmetry within a more restricted region of eastern Indonesia. On the level of the individual symmetric alliance is realised through bilateral cross-cousin marriage (marriage with either classificatory cross-cousin), and in such an arrangement both exchange groups are equally wife-giver and wife-taker. The question of group hierarchy as determined by an established and deliberately perpetuated direction of marital alliance – a characteristic which is so prominent in asymmetric systems (see Table 1) – thus cannot arise in the symmetric variant.

How can linguistic evidence help to determine whether systems of symmetric or of asymmetric alliance have an older history in the Austronesian language family? The matter here is not so simple as determining whether or not descent groups were present, and before

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Needham further distinguishes between ‘prescriptive’ and non-prescriptive terminologies. More precisely, then, he has argued for an evolution of attested terminological systems from an earlier terminological system of symmetric prescriptive alliance. I disregard the issue of prescriptive vs non-prescriptive terminology in constructing my argument, as it appears to have no bearing on the outcome.
it can be approached meaningfully some background in comparative linguistics is essential for the non-linguist reader.

3. LINGUISTIC PREREQUISITES

Between about 1890 and the time of his death in 1913, the Swiss linguist Ferdinand de Saussure laid the foundations for the study of language as part of a general theory of signs. Central to a number of his analyses was the principle of the “arbitrariness of the linguistic sign”, or the generally non-iconic relationship between sound and meaning. It is this principle which makes it possible to determine whether similarities between languages have a value as markers of shared history, or whether such similarities might as easily be attributed to the independent operation of language-universal tendencies. Ironically, the field of historical linguistics, which may be said to owe its existence to Saussure’s insight, actually developed long before this insight had been explicitly formulated.

3.1 THE COMPARATIVE METHOD OF LINGUISTICS

The comparative method of linguistics was developed in connection with the establishment of the Indo-European language family and the reconstruction of its hypothetical immediate common ancestor, Proto Indo-European. This undertaking occupied several generations of scholars, and today stands as one of the great intellectual achievements of the nineteenth century. Like the theory of evolution by natural selection the comparative method of linguistics continues to provide a scientific paradigm within which productive research is conducted. Its fundamental soundness as a tool for prehistoric inference has been validated repeatedly over more than a century and a half, at first almost entirely through research on the Indo-European languages, but increasingly in this century through comparative research on a variety of other language families (for the classic extension of the method to non-western languages see Bloomfield (1925, 1928); for the proceedings of a recent symposium devoted to the universality of the comparative method see Baldi (1990)).

One of the key discoveries made by Rask and Grimm during the first two decades of the nineteenth century and later refined by Grassmann, Verner and the Neogrammarians, is the regularity of sound change, often referred to as the ‘Regularity Hypothesis’. It is the Regularity Hypothesis which makes it possible to distinguish linguistic similarity due to chance or borrowing from linguistic similarity due to divergent descent from a common ancestor, and hence to reconstruct earlier stages of linguistic (and cultural) history. Sound correspondences are exemplified in morphemes, and morphemes of similar meaning which exhibit recurrent sound correspondences are said to be cognate. Based on sets of cognate morphemes in at least two widely separated languages one reconstructs protophonemes, protoforms and ultimately protolanguages. It is a fundamental premise of historical linguistics that cognition is established on the basis of recurrent sound correspondences

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8 About ten years ago, in discussing diachronic issues in ethnology with a distinguished European social anthropologist who specialises in Southeast Asia, I was asked (much to my astonishment) whether historical linguistics hadn’t been ‘discredited’. More than anything I can add, remarks such as these expose the gulf that has come to separate linguistics and anthropology in many universities during the past quarter of a century, much to the detriment of progress with diachronic issues in ethnology.

9 For reasons explained in Blust (forthcoming b) I prefer ‘recurrent sound correspondence/recurrent sound change’ to ‘regular sound correspondence/regular sound change’. This deviation from the strict Neogrammrian position has no effect on the argument presented here.
rather than on the basis of phonetic similarity. The two may, and often do coincide, but many phonetically similar morphemes in different languages are not cognate, and many cognate morphemes in different languages are not phonetically similar.

Regretfully, there have been several linguistic analyses in the anthropological literature relating to Indonesia in recent years which show that the concept of 'cognate' continues to be misunderstood by well-meaning social anthropologists who have an interest in historical issues in ethnology, but who lack training in the tools best suited to approach such issues. One of the major aims of this paper is therefore to demonstrate the central importance of adequate methods of historical reconstruction in linguistics to historical reconstruction in ethnology.\(^{10}\)

The successes of the comparative method of linguistics have so often been celebrated that its shortcomings are sometimes overlooked by those who rely on secondhand knowledge. One point that should be emphasised is that the reconstruction of a 5,000 or 6,000 year-old protolanguage is not a high resolution affair. Some social anthropologists rather naively expect the comparative linguist who is involved in reconstruction to be able to distinguish between theoretical models of social organisation that are of interest to kinship specialists working with attested societies. This type of expectation can be compared to a demand that astronomers using earth-based telescopes distinguish features a few metres in size on the surface of Mars. No protolanguage of any great time-depth, not even Proto Indo-European, has been reconstructed in such fine detail that we can, for example, translate a passage of more than a few words from a modern language into it (despite some overly-ambitious nineteenth-century attempts to do so).

One other matter than can be raised here concerns a belief expressed by Aberle (1980:226-228), Fox (1980a:234, 1988b:36ff.) and Forth (1985:137, 1990:389) that (in the words of the last-mentioned writer) “terminological reconstructions should proceed from the bottom up, by comparing cognate terms from the smallest sub-groupings before positing prototerms for such inclusive groupings as PAN and PMP”. This point of view, unjustified as it is, is surprisingly widespread, not only among anthropologists, but even among some linguists (Blust 1976b:354). The reconstruction of Proto Indo-European did not proceed “from the bottom up”, nor did, for example, Dempwolff (1934-38) see the need to reconstruct Proto Tagalic, Proto South-West Barito, Proto Malayic or Proto Polynesian before reconstructing

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\(^{10}\) Particularly egregious examples are Forth (1985, 1990) and Fox (1988a). In the first of these papers it is argued that Kambera (Sumba) layia ‘WB, ZH’ (dubiously analysed into two morphemes la-yia) is a reflex of Proto Malayo-Polynesian *hipaR ‘sibling-in-law (probably of the same sex only)’. Apart from the fact that the reconstruction is repeatedly written incorrectly as *ipay/hipay, Forth’s entire argument is based on a priori notions of plausible cross-linguistic similarity rather than on a consideration of recurrent sound correspondences, which would have shown him that there is no precedent for his claim that PMP *p disappeared in Kambera (the expected form of *hipaR in Kambera is **ipa). In the second paper Forth (1990:376ff.) candidly acknowledges that his understanding of ‘cognate’ is a relationship based purely on phonetic similarity, and then proceeds to erect an elaborate historical argument based on the comparison of East Sumbanese mamu ‘FZ, FZH’ with reflexes of PMP *mama ‘MB’ despite an obvious irregularity in the sound correspondences (cf. PMP *ama > KMB /ama/ ‘F’, *ina > /ina/ ‘M’. In the third paper Fox attempts to connect the arbitrarily segmented first syllable of PMP *puqun ‘base of a tree, foundation, origin’ with the arbitrarily segmented last syllable of *empu ‘grandparent/grandchild (reciprocal)’, and both of these with *tumbuq ‘to grow’ through its Proto Oceanic form *tumpuq. This argument, presented by a highly accomplished ethnographer, shows so many serious misunderstandings of morphology, the Regularity Hypothesis and the interrelationships of protolanguages of different time-depths that one hardly knows where to begin the process of correction. Fortunately, we are far better off in the Oceanic branch of Austronesian, where prominent anthropologists such as Goodenough, Chowning and Green are well-trained in the basics of comparative linguistics.
Proto Austronesian based on a direct comparison of such languages as Tagalog, Ngaju Dayak, Malay, Tongan or Samoan. In fact, the reconstruction of such lower-order proto-languages as Proto Germanic profited enormously from the prior existence of reconstructions for Proto Indo-European, as in the formulation of Verner’s Law. Anttila (1972:346) calls the reconstruction of lower-order protolanguages through reference to external witnesses “inverted reconstruction”, and Blust (1972c:1ff.) calls the same procedure “reconstruction from the top down”. In both cases its value is emphasised. Moreover, as noted in Blust (1976b), the logical outcome of a strict inductivist approach to linguistic reconstruction such as that recommended by Forth as the only acceptable one, is a potentially infinite regress to the comparison of dialect, subdialect and even idiolect before any useful comparative work can commence.

Finally, it should be appreciated that all languages change over time. What this means to the practising comparative linguist is that situations may arise in which it is necessary to reconstruct some feature for a protolanguage which is retained unchanged in none of its descendants (though its distinctness from other features must be retained in at least two witnesses for it to be reconstructable). The justification for such reconstructions, as for any others, is always: (1) compatibility with the primary data for which an explanation is sought, and (2) competitive simplicity in relation to alternative hypotheses. Since all languages change, the raw material of comparative linguistics is that part of prehistoric languages involving an arbitrary association of sound and meaning which has survived in several widely separated descendants. The collection of languages which retain any given feature will differ from one linguistic feature to the next. If some feature of a prehistoric language is distinguished in only one descendant we will have no basis for reconstructing it, even though it was present in the language we wish to reconstruct. For this reason the description of a reconstructed language is inevitably less complete than that of an attested language. In conducting diachronic research on a language that existed five or six millenia in the past one learns to accept a certain measure of crudity in comparison with what could be accomplished if direct observation were possible. The same caveat applies to the reconstruction of cultures that are associated with such prehistoric languages: for a social anthropologist to demand that a linguistic reconstruction provide details that are descriptively important to anthropological theory may be unreasonable, given the general lability of both linguistic and cultural forms over a period of millenia. It is a remarkable fact that the comparative method allows us to penetrate confidently to a time-depth of perhaps six millenia, and any general feature of social organisation that can be inferred from such reconstructed language material is a gift that we are not likely to receive in any other way.

3.2 SEMANTIC RECONSTRUCTION

When historical linguists speak of linguistic reconstruction what is normally meant is the reconstruction of phonemes (phonological reconstruction) and morphemes (lexical reconstruction). It should be recognised that phonological and lexical reconstruction are interdependent processes, since phonemes can only be reconstructed on the basis of correspondences in cognate morphemes. Hence protophonemes and protomorphemes (or etyma) are reconstructed together. Methods and procedures for syntactic reconstruction (as distinct from the reconstruction of inflectional morphology) have generally lagged far behind those for phonology and the lexicon.
In contrast to phonological/lexical reconstruction, where well-established methods have been available for generations, and to syntactic reconstruction, which until recently has been largely ignored due to the lack of adequate methods of historical inference, semantic reconstruction has occupied an awkward limbo somewhere in between. On the one hand, reconstructed morphemes must be assigned meanings. Unlike syntactic reconstruction, which is relatively independent of phonological/lexical reconstruction, the problem of semantic reconstruction cannot, therefore, simply be ignored. On the other hand, no generally accepted method exists for reconstructing meanings such as exists for the reconstruction of phonemes.

In many, perhaps most cases, this unfortunate state of affairs does not lead to serious problems. The comparison of Tagalog *laŋit*, Malay *laŋit*, Manggarai *laŋit*, Kei *lanit*, Samoan *laŋi*, all meaning ‘sky’ requires no semantic inference apart from the relatively uncontroversial one that *laŋit* must have meant ‘sky’. But what are we to do with cognate terms that differ in meaning, such as English *thatch* next to Dutch *dak*, German *Dach* ‘roof (of any material)? Here the forms compared exhibit recurrent phonological correspondences (for the initial consonant, compare, for example, three: drie: drei, or thief: dief: Dieb; for the final consonant, compare rich : rijk : Reich, or such : zulk : solch), but what did Proto West Germanic *θak* mean?

Dyen and Aberle (1974) have developed a set of procedures for matching reconstructed morphemes with predetermined categories of meaning. They call this set of procedures “lexical reconstruction”. It is essential to recognise that lexical reconstruction is interested only in the matching of reconstructed morphemes with meanings that are drawn from the lists of languages compared. In their approach no reconstructed morpheme can have a meaning which is not reflected unchanged in at least two languages that belong to different primary subgroups. They thus have no methodologically motivated basis for glossing a form such as Proto West Germanic *θak*, where one primary subgroup (represented by English) reflects the meaning ‘thatch’, while the other primary subgroup (represented by Dutch and German) reflects the meaning ‘roof’.

Blust (1987a) contrasts lexical reconstruction as advocated by Dyen and Aberle with a fundamentally different approach, called “semantic reconstruction”. Unlike lexical reconstruction, in which one asks the question ‘What was the protomorpheme which probably meant ‘X’?’, semantic reconstruction requires one to ask the very different question ‘What was the probable meaning of protomorpheme ‘X’?’. The procedure of semantic reconstruction turns about two crucial concepts: (1) the meaning of a lexical item in an attested or a reconstructed language is determined by contrast within a field of lexical items of partially similar meaning, and (2) two reconstructed lexical items with radically different ‘semantic profiles’ must have differed in meaning. The first of these concepts is the familiar Saussurean approach to the determination of the structural units of language: “Language is a system of interdependent terms in which the value of each term results solely from the simultaneous presence of the others…” (Saussure 1966[1915]:114). The second concept ensures that we have some basis for explaining radically different trajectories of semantic evolution in the reflexes of protoforms that could be glossed the same using the Dyen-Aberle approach.11

Oddly, Forth (1990:389, and fn. 20) attributes to me a belief that categories of meaning in reconstructed languages must be identical to categories of meaning in their descendants: “The case of *tuya* also illustrates the need to formulate particular courses of terminological change in advancing an evolutionary
Before concluding this section one other methodological issue should be aired. Fox (1988b:36, pers.comm.) has insisted that any conclusions about social organisation which are based on reconstructed kinship terminology must await the reconstruction of a complete terminological system. This requirement is consistent with the Saussurean approach to meaning in general, and I am in full agreement with it as it applies to synchronic systems. However, Saussure (1966:90) clearly distinguishes between what he calls “the two linguistics” (static and evolutionary, or synchronic and diachronic), and he maintains (p.91) that “the synchronic and diachronic ‘phenomenon’...have nothing in common...One is a relation between simultaneous elements, the other the substitution of one element for another in time, an event”. It may be useful to think of these respectively as ‘horizontal’ and ‘vertical’ relations of meaning. Misunderstanding has arisen where Fox (and some other social anthropologists) have approached diachronic analyses as though they are simply synchronic analyses of past systems. What this approach overlooks is the dimension of change linking past synchronic systems with present synchronic systems, a dimension which is at least partially recoverable from a comparison of the glosses of heterosemantic cognate forms. The fact that English clock, a generic term for any stationary timepiece, is cognate with Dutch klok, German Glocke ‘bell (and clock)’ surely is not without significance for our understanding of the history of time-keeping in the European cultural tradition. Moreover, the reconciliation of these divergent glosses under a single etymon yields a valuable historical inference that can be justified outside any system of past or present synchronic contrasts. Rather than mechanically reconstructing a Proto West Germanic morpheme for ‘clock’ (based on an agreement of meaning in all three languages) we must infer not only a meaning ‘bell’, but also a behavioural precondition for the transfer of meaning, hence a cultural practice (dating at least from the Middle Ages) of using bells for the public marking of time. Similar arguments supporting an inference of earlier cave burial among ethnic groups in northern Sarawak that have had no such practice within the ethnographic present, and of earlier matrilineal descent among the patrilineal peoples of Malaita in the Solomon Islands, are presented in Blust (1986-87).

In dealing with the subset of kinship terminology relevant to the present argument I follow the approach to semantic reconstruction developed in Blust (1987a). A fundamental premise of this approach is that true synonymy is rare, and should not be lightly assumed in the glossing of reconstructed morphemes.

3.3 SUBGROUPING

The problem of linguistic subgrouping can be formulated as the following question. Given three languages A, B and C which are known to be genetically related (e.g. Icelandic, English and French) is there a basis for concluding that two of the languages are more closely related to one another than either is to the third? The importance of subgrouping to reconstruction has been appreciated at least since the Neogrammarians (last quarter of the nineteenth century), and the principles which govern the evaluation of subgrouping evidence were first clearly enunciated during the same period. Briefly, only linguistic innovations (changes in phonology, morphology, lexicon, syntax or semantics) can be used as reliable interpretation, rather than simply assuming (as Blust implicitly does) that current usages will directly reflect a single, original system at the most inclusive level”. Not only have I never advocated such an approach to semantic reconstruction, but it is rather well known that I have argued vigorously against it (Blust 1987a).
evidence for subgrouping, common retentions telling us nothing about a period of exclusively shared history. The factor which most often interferes with straightforward application of the comparative method and the determination of exclusively shared innovations is borrowing. However, borrowing is far more likely to affect semantic domains which can be characterised broadly as 'cultural' than the semantic domains represented by 'basic vocabulary' (body parts, pronouns, low numerals, basic kin terms, words for everyday universal natural phenomena, etc.). A second factor which complicates the problem of linguistic subgrouping is drift, or independent parallel development. This is discussed in section 3.4.

Greenberg (1957:46ff.) points out that the problem of subgrouping genetically related languages is often far more difficult than the problem of establishing the primary fact of relationship. This has certainly been true in Austronesian, as the broad membership of the family (exclusive of the Formosan languages) has been known since the second voyage of Cook (1772-75), yet no comprehensive subgrouping was undertaken until that of Dyen (1965b). Dyen’s classification was based on the then new and largely untested method of lexicostatistics, and it thus constituted not only a major application of the method to a particular family of languages, but also an important test of the validity of lexicostatistics in general.

Although the results of Dyen’s classification were initially greeted with some enthusiasm (e.g. Murdoch 1964), today virtually all Austronesian comparativists reject his family tree, both with reference to its major branches, and to many of its finer ramifications. It is now evident that in determining such major groupings as the ‘Malayo-Polynesian Linkage’ Dyen was simply misled by the failure of lexicostatistics to distinguish innovations from retentions. Languages which are demonstrably more conservative in the rate at which they have replaced basic vocabulary (e.g. Malay, Tagalog, the Polynesian languages) were thus grouped together despite a total absence of qualitative evidence for such a grouping, and indeed a good deal of qualitative evidence which is directly at odds with it (Grace 1966, Bellwood 1979:124ff.).

The following subgrouping of Austronesian is now accepted, in whole or in part, by a number of scholars working within the fields of Austronesian linguistics, and of general linguistics: (1) Austronesian (AN) divides into Formosan (one or more primary subgroups in Taiwan) and Malayo-Polynesian (MP: all non-Formosan AN languages), (2) MP divides into Western Malayo-Polynesian (WMP: AN languages of the Philippines, western Indonesia, mainland Southeast Asia and Madagascar, together with Palauan and Chamorro of western Micronesia) and Central-Eastern Malayo-Polynesian (CEMP), (3) CEMP divides into Central Malayo-Polynesian (CMP: AN languages of the Lesser Sunda and Molucca Islands from Bimanese in the west through Aru and thence northwards through the central Molucca Islands inclusive of the Sula Archipelago), and Eastern Malayo-Polynesian (EMP), (4) EMP divides into South Halmahera-West New Guinea (SHWNG: AN languages of Halmahera, the Raja Ampat Islands and the Vogelkop Peninsula of New Guinea as far east as Waropen) and Oceanic (OC), (5) OC includes over 450 languages in Melanesia, Micronesia and Polynesia. The languages of the Bomberai Peninsula (Irian) are insufficiently known to permit secure subgrouping, but preliminary data suggest that some of these, including at least Sekar, Onin and Uruangnirin, are CMP, while others (as Irahutu) may constitute a primary branch of the SHWNG group (Blust 1993). The position of Yapese (western Micronesia) within MP is unclear.
This subgrouping was challenged by Aberle (1980) who, however, did so without any reference to the relevant literature or supporting evidence. The Oceanic node was first demonstrated by Dempwolf (1937), and is now so well established as to require little comment. Arguments in support of EMP are presented in Blust (1978a), arguments in support of CEMP in Blust (1974a, 1983-84b, 1993), and arguments in support of MP in Blust (1977a, 1992a). This view of subgrouping relationships in Austronesian has not been without its critics (most notably Isidore Dyen), but it has been adopted almost unchanged by Bellwood (1985:107ff.), Ruhlen (1987) and Clark (1992). In a recent publication Grace (1990:160) refers to “Robert Blust’s classification, which appears to be accepted at least as a working hypothesis by the majority of Austronesianists”.

The point of the preceding paragraph is to make it clear to the uninformed reader that the subgrouping adopted in this paper (1) is supported by a good deal of published data and argumentation, and (2) is independent of the argument presented here.

3.4 DRIFT

The term “drift” was introduced into the linguistic literature by Edward Sapir (1921) in connection with observations about the history of pluralising umlaut in the Germanic languages. Sapir pointed out that both English and High German have undergone a series of changes in which an old plural suffix *-i was weakened (in German) or lost (in English), but only after transferring the grammatical information that it had originally carried to the vowel of the nominal stem through the phonological process of umlaut. As a result of this process irregular singular : plural forms of the type mouse : mice arose in English and parallel singular : plural forms of the type Maus : Mäuse arose quite independently in High German (but not Low German). Given the fairly detailed agreement in the form of this change one would normally consider it simplest to assume that it took place once in the common ancestor of both languages. Instead, Sapir argued that the change was completely independent in the two closely related languages, having begun in each after their separation and the transplantation of English from the European mainland to the British Isles.

Leonard Bloomfield, Sapir’s contemporary and competitor for the leadership of American linguistics throughout the 1920s and 1930s, treated the idea of drift with the same scepticism that he reserved for ‘mentalistic’ concepts in descriptive linguistics. To him drift was a ‘mystical’ concept not worthy of serious scientific study.

Time has shown the importance of Sapir’s insight. Other instances of drift, both large and small, have been documented and their theoretical significance discussed by linguists with a variety of theoretical persuasions, including Hockett (1948), Greenberg (1957), Vennemann (1975), Blust (1978b:117ff., 1990), Malkiel (1981) and Donegan and Stampe (1983). The common view of these and other scholars who have written on the subject is that drift (Malkiel prefers to call it “slant”) is a product of the independent operation of inherited structural pressures in languages that have separated from a common ancestor. The consequence of this shared set of constraints and tendencies is an increased likelihood for historically independent changes to follow similar lines of development in genetically related languages. Understandably, all linguistic examples of drift that have been described to date appear to be motivated by structural pressures of language organisation. In this paper, however, I argue for the first reported case of a linguistic drift that is motivated by structural pressures of social organisation.
4. BRIEF SUMMARY

To assist the reader in following the main outlines of the argument, I briefly summarise in this section the major observations which provide its empirical substance.

It is important for the anthropologist reader to recognise that the inferences reached in this paper do not depend in any way on a particular model of how systems of asymmetric alliance work. All that the reader must allow in order to accept my inference that PMP society had descent groups is: (1) the correlation between type of sibling terminology and type of descent reported cross-culturally by Murdock (1968); (2) the ‘uniformitarian hypothesis’ that correlations between features of terminology and type of descent which hold in the present also held in the past; and (3) my reconstruction of a cross/parallel distinction in the PMP sibling terminology. In short, if the cross/parallel distinction shows a statistically significant correlation with the presence of descent groups, as Murdock claims to have demonstrated, and such correlations as hold in the present also held in the past, then the presence of a reconstructed cross/parallel distinction in the PMP sibling terms clearly supports a probabilistic inference that descent groups were present in PMP society.

For my second inference (that a form of matrilateral cross-cousin marriage was a dominant PMP organisational ideal) the reader need only accept the following propositions: (4) the PMP terms for cross-siblings were \( *\text{naRa} \) ‘B (w.s.)’ and \( \text{betaw} \) ‘Z (m.s.)’; (5) these semantically non-derivative, monomorphemic terms were replaced in some WMP languages, some CMP languages, and all OC languages by terms which had the primary meanings ‘male/female’ or ‘male child/female child’; (6) PMP \( \text{anak} \) ‘child’ meant not only ‘offspring’, but also ‘member of a social group’; (7) in systems of dual cosmological classification universally the classificatory category ‘male’ aligns with ‘wife-giver’ and the classificatory category ‘female’ with ‘wife-taker’; and (8) PMP \( \text{anak ma-Ruqanay/laki} \) (‘child/group’ + ‘male’) and \( \text{anak bahi/babahi/binahi} \) (‘child/group’ + ‘female’) referred not to cross-siblings, but rather to wife-givers and wife-takers respectively, as attested wholly or in part in such contemporary languages as Karo Batak and Dairi-Pakpak Batak of Sumatra, Manggarai, Atoni and Tetun of the Lesser Sunda Islands, and Huaulu of the Molucca Islands.

Finally it must be pointed out that the two inferences which I have proposed (presence of descent groups, adherence to an ideal of matrilateral cross-cousin marriage) are logically independent. Although the evidence for each overlaps in my reconstruction of a cross/parallel distinction in the PMP sibling terminology, the first inference is based entirely on points (1), (2) and (3), and these points in themselves imply nothing about a marriage rule.

5. PROTO MALAYO-POLYNESIAN SIBLING TERMS

In his pioneering but outdated comparative dictionary, based on data from eleven of the more than 900 Austronesian languages, Dempwolff (1938) reconstructed four terms for siblings. In Dyen’s orthography they are: (1) \( *\text{a(n)ji} \) ‘consanguineal relative (generally younger)’; (2) \( \text{betaw} \) ‘sibling of the opposite sex’; (3) \( *\text{qa(n)ji} \) ‘consanguineal relative (generally of the opposite sex)’; and (4) \( \text{kaka} \) ‘elder sibling’. The first and third items were erroneously reconstructed as doublets because of Dempwolff’s failure to deal adequately with the correspondences that Dyen (1953b) assigned to \( *q, \text{*h} \) (later rewritten \( *S \)) and zero. This leaves three PMP terms, now written \( *\text{hua(n)ji}, \) \( \text{betaw} \) and \( \text{kaka} \).
It is clear that Dempwolff’s reconstructed terms do not form a coherent system definable in terms of relative or absolute sex, relative age or other features that are commonly used to generate systems of sibling terminology (Nerlove & Romney 1967, Murdock 1968). Most notably, Dempwolff found no comparative evidence in the eleven languages he considered for reconstructing: (1) a second monomorphemic cross-sibling term, or (2) two additional semantically derivative or morphologically complex cross-sibling terms, both of which are revealed by wider comparison. I refer to the monomorphemic expressions as ‘historically primary’, and the semantically derivative or morphologically complex expressions as ‘historically secondary’ cross-sibling terms respectively.

5.1 THE HISTORICALLY PRIMARY SIBLING TERMS

Table 2 presents evidence which justifies the reconstruction of four PMP sibling terms: *betaw ‘sister (man speaking)’, *ñaRa ‘brother (woman speaking)’, *kaka/aka ‘elder sibling’ and *hua(n)ji ‘younger sibling’, the latter two possibly restricted to siblings of the same sex. The languages from which data is cited are segregated into three major subgroups: Western Malayo-Polynesian (WMP), Central Malayo-Polynesian (CMP), and Oceanic (OC). In a few cases it has been necessary to infer the probable gloss of a term from the gloss actually given, although as a rule I have adhered closely to my sources even where there are grounds for questioning them (cf. Appendix).12

TABLE 2: EVIDENCE FOR THE HISTORICALLY PRIMARY PMP SIBLING TERMS

(1) *betaw

WMP:
Berawan (Long Terawan) betaw ‘sister’ (1)
Ngaju Dayak betaw ‘sister, man speaking’ (2)
Toba Batak i-boto ‘sibling of opposite sex’ (3)
Simalungun Batak botow ‘sibling of opposite sex’

CMP:
Manggarai weta ‘sister, man speaking’
Ngadha veta ‘sister, man speaking’
Endeh veta ‘sister, man speaking’
Waijewa woto ‘sister, man speaking’
Roti foto ‘sister, man speaking’
Tetun feto-n ‘sister, man speaking’
Alune beta ‘sibling of opposite sex’
Soboyo foto ‘sister, man speaking’

(2) *ñaRa

WMP:
Ngaju Dayak ñahE13 ‘brother, woman speaking’ (2)

12 Cases where I question (but accept) the source appear in the Appendix with a parenthesised alternative gloss followed by a question mark, as with Maranao kaka ‘elder’ (= el/?). Cases where I reinterpret (and hence reject) the gloss given by the source appear with a parenthesised alternative gloss not followed by a question mark, as with Maranao babai ‘Z’ (= xf). For a justification of the segmentation of initial *t-, and of final *-ñ and *-ñ see Blust (1979).

13 For typographical convenience I use ‘E’ for Hardeland’s (1859) digraph.
CMP:
Komodo na ‘brother, woman speaking’
Manggarai nara ‘brother, woman speaking’
Ngadha nara ‘brother, woman speaking’
Endeh nara ‘brother, woman speaking’
Sika nara ‘brother, woman speaking’
Solorese naa ‘brother, woman speaking’
Waijewa na?a ‘brother, woman speaking’
Roti na ‘brother, woman speaking’
Tetun naa-n ‘brother, woman speaking’
Erai nara-n ‘sibling of opposite sex’
Leti nara ‘sibling of opposite sex’
Wetan nara ‘sibling of opposite sex’
Soboyo naha ‘brother, woman speaking’

(3) *kaka/aka

WMP:

PHILIPPINES
Ivatan kaka ‘elder sibling’ (4)
Botolan Sambal kaka-? ‘elder sibling’
Kalaman Tagbanwa aka-? ‘elder sibling’
Umirey Dumagat kaka ‘elder sibling’
Casiguran Dumagat aka ‘elder sibling’
Atta kaka ‘elder sibling’
Ata Manobo kako-y ‘elder sibling of same sex’ (5)
Cotabato Manobo kako-y ‘elder sibling of same sex’
Samal si-aka ‘elder sibling’

WESTERN INDONESIA
Ngaju Dayak kaka ‘elder sibling’
Ngaju Dayak aka ‘elder sibling’
Malay kaka-k ‘elder sibling’
Toba Batak haha ‘elder sibling of same sex’
Dairi-Pakpak Batak kaka ‘elder sibling of same sex’
Simalur kaka-? ‘elder sibling’
Nias ka? a ‘elder sibling’
Mentawai kaka ‘elder sibling’
Middle Malay kaka-? ‘elder sibling’
Old Javanese kaka-ŋ ‘elder sibling’
Javanese kaka-ŋ ‘elder sibling’
Sasak kaka-? ‘elder sibling’

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14 According to Hardeland (1859) /aka/ refers to one’s own elder sibling, while /kaka/ is used in general reference. Durde Durasid, a native speaker of the Katingan dialect of Ngaju Dayak, maintains that /kaka/, /aka/ and /andil/ are terms of reference for parallel siblings only, but are terms of address/vocatives for both cross and parallel siblings. Thus, a man calls-addresses his eZ as /kaka/, but refers to her as /betaw/, but he both calls and refers to his eB as /kaka/. According to Durasid, /kaka/ and /aka/ are synonymous, but /aka/ connotes greater affection. In addition, a third person may use yar? as a term of reference for a younger parallel sibling, as when a father speaks to his older son about the latter’s younger brother.
SULAWESI

Sangir kaka-ʔaka-ʔ 'elder sibling of same sex'
Tondano kaka-ʔ 'elder sibling'
Bare'e tu-kaka 'elder sibling'
Tae' kaka-ʔ 'elder sibling'
Mori aka 'elder sibling'
Makassarese kaka-ʔ 'elder sibling'
Wolio aka 'elder sibling'

CMP:
Komodo ha(ha) 'elder sibling'
Manggarai kaʔe 'elder sibling of same sex'
Ngadha kae 'elder sibling'
Endeh kaʔe 'elder sibling of same sex'
Solorese kaka 'elder sibling'
Roti kaʔa 'elder sibling of same sex'
Wetan kaka 'elder sibling'
Fordat aʔa 'elder sibling of same sex'
Paulohi w-aa 'elder sibling'
Soboyo kaka 'elder sibling'

OC:
Yabem kaka 'elder sibling of same sex (vocative)'
Manam aʔa 'elder sibling of same sex (vocative)'
Motu kaka 'elder sibling of same sex'
Bugotu kaka 'elder sibling of same sex (vocative)'

(4) *hua(n)ji

WMP:

PHILIPPINES

Ivatan wari 'younger sibling' (4)
Botolan Sambal ali 'younger sibling'
Kalamian Tagbanwa ariʔ 'younger sibling'
Umirey Dumagat weli 'younger sibling'
Casiguran Dumagat wadi 'younger sibling'
Ata Manobo hari 'younger sibling of same sex' (5)
Cotabato Manobo hadi 'younger sibling of same sex'
Maranao pag-ari 'brother, sister'
Samal si-ali 'younger sibling'

WESTERN INDONESIA

Miri t-adih 'younger sibling'
Bintulu t-arey 'younger sibling'
Ngaju Dayak andi 'younger sibling'
Ngaju Dayak pah-ari 'parallel sibling'

15 Steller and Aebersold (1959) give aka-ʔ as 'the elder of two brothers or sisters' and kaka as 'eB', 'eZ'. The restriction to parallel siblings thus appears to apply only to the first term.
16 Manggarai, Endeh /kaʔe/, Ngadha /kael/ cannot regularly reflect *kaka. They may be irregularly reshaped reflexes of *kaka, or unrelated forms which show a superficial resemblance to the expected reflex of this item.
Rhade adei ‘clan, blood relative (usually younger)’
Malay adi-k ‘younger sibling’
Toba Batak angi ‘younger sibling of same sex’
Dairi-Pakpak Batak angi ‘younger sibling of same sex’
Simalur axi ‘younger sibling’
Nias achi ‘younger sibling’
Middle Malay adi-n ‘younger sibling’
Mentawai bagi ‘younger sibling’
Old Javanese ari ‘younger sibling’
Javanese ari ‘younger sibling’
Sasak adi-? ‘younger sibling’

SULAWESI
Sangir t-uari ‘younger sibling’
Tondano rari ‘younger sibling’
Bare’e tu-a?i ‘younger sibling’
Tae’ ari ‘younger sibling’
Mori wai ‘younger sibling’
Makassarese andi-? ‘younger sibling (less refined)’
Makassarese ari ‘younger sibling (more refined)’
Wolio andi ‘younger sibling’

CMP:
Komodo ari ‘younger sibling’
Manggarai ase ‘younger sibling of same sex’
Ngadha azi ‘younger sibling’
Endeh ari ‘younger sibling of same sex’
Solorese ari-n ‘younger sibling’
Kambera eri ‘younger sibling of same sex’
Roti fadi ‘younger sibling of same sex’
Wetan yari ‘younger sibling’
Fordat wari ‘younger sibling of same sex’
Kei wari-n ‘younger sibling of same sex’
Paulohi wari ‘younger sibling’

OC:
Yabem l-asi ‘younger sibling of same sex’
Manam t-ari ‘younger sibling of same sex’
Motu t-adi ‘younger sibling of same sex’
Bugotu t-ahi ‘younger sibling of same sex’

In the above citations I have tried to group together only terms which belong to the same cognate set, regardless of their meaning. In a few cases the forms cited may in fact not be cognate, as with Manggarai, Endeh /kaʔɛɬ/, Ngadha /kaɛɬ/ ‘elder sibling of the same sex’, cited under *kaka. In virtually every other case the phonological correspondences relating the attested forms to their reconstructed prototypes can be shown to be recurrent. This remark may require a note of explication.

My Ngaju Dayak material, like that of Dempwolff and Dyen before me, comes from the classic dictionary of Hardeand (1859), in which two ‘speech strata’ were recognised by Dempwolff (1937) and reinterpreted by Dyen (1956). Ngaju Dayak -ɛɬ/ is the normal reflex
of PMP *-a in the 'old speech stratum', while */ala/ is the corresponding ‘new speech stratum’ reflex (Dyen 1956). Since ‘new speech stratum’ forms generally are believed to be products of borrowing from Banjarese Malay it is possible that Ngaju Dayak /kaka/ is a Banjarese loan. However, the occurrence of the variant /kaka/, which is not reported for Banjarese or other Malay dialects, raises doubts about this suggestion. Furthermore, Hudson (1967) lists kinship terms for several Ngaju dialects, including Kapuas /kaka/ ‘elder sibling’, /naha/ ‘brother’ (implied, but not stated to be from the standpoint of a female speaker), and Katingan /kaka-k/ ‘elder sibling’, /naha-i/ ‘brother’ (explicitly stated to be from the standpoint of a female speaker). Hudson’s Katingan terms for ‘elder parallel sibling’ and ‘brother of a woman’, like the similar terms given by Hardeland, have different endings, but his Kapuas terms do not. These problems remain unresolved, but hardly cast serious doubt on the Ngaju Dayak contribution to the reconstruction of *ñaRa and *betaw.

Reflexes of PMP *hua(n)ji (PAN *Suaji) are quite varied, for the following reason. Although PAN *S is preserved as a sibilant in most Formosan languages, outside Taiwan the initial consonant of *Suaji has become /h/ in the central and southern Philippines, and disappeared almost everywhere else. Where it disappeared the resulting /u/ before a low vowel often semivocalised, yielding a historically secondary form *wa(n)ji which then underwent the same changes as forms with original *w- (e.g. Mentawai, with *w > /ha/, Rotinese, with *w > /fi/). In a few Philippine languages, particularly in Mindanao, the expected reflex inexplicably fails to show /u/ (e.g. Ata Manobo, where we would expect **huari, not the attested /hari/). Finally, as noted in Blust (1979), reflexes of PAN *Suaji (and of various other kinship terms) sometimes contain a vocative prefix *t-.

If cognate sets (1)-(4) are mapped onto the Austronesian family tree described in section 3.3, it is apparent that their prototypes must have been found in the common ancestor of the WMP and CMP languages (Proto Malayo-Polynesian). Our next task is to assign meanings to these four PMP forms.

One way to gloss PMP *betaw, *ñaRa, *kaka and *hua(n)ji would be to count semantic reflexes and determine meaning by majority rule. This is essentially the approach of Marshall (1984), who concludes that Proto Oceanic (he does not use the term) made only a cross/parallel distinction in sibling terms, since this is the most frequent pattern that he found in his data sample. As Bender (1984), Blust (1984a), Chowning (1984) and Clark (1984) have all pointed out, this analysis fails to explain why, if a relative age distinction did not exist in the parallel sibling category in Proto Oceanic, reflexes of POC *toka (reference) or *kaka (vocative) always indicate the elder sibling, and reflexes of POC *tansi always indicate the younger sibling in terminologies which distinguish relative age among parallel siblings. In fact, Marshall’s analysis completely ignores the well-known methodological distinction between typological comparison, which aims at the establishment of universal associations together with implicational relationships, and genetic comparison, which aims at the establishment of specific historical connections.

An alternative approach to glossing reconstructed forms which does pay close attention to the difference between the comparison of structural categories (= typological comparison) and the comparison of cognate forms, is that of Dyen and Aberle (1974). As noted in Blust (1987a) the Dyen-Aberle approach is not one in which semantic categories are reconstructed in the same sense in which phonemic forms are reconstructed. Rather, it is an approach in which reconstructed phonemic forms are matched with semantic categories that are given in
advance. Functionally, the most important concept in the Dyen-Aberle method is the concept of ‘inclusion’. According to Dyen (in Dyen & Aberle 1974:17):

If a candidate \(c\) appears in a list of subgroups \(L_1\) in meaning \(M_1\) and also in a different list of subgroups \(L_2\) in meaning \(M_2\), then if \(L_2\) contains all of the subgroups of \(L_1\) and at least one subgroup in addition, \(L_2\) is said to include \(L_1\); our practice is to say that the particular candidate \(c\) in \(M_2\) INCLUDES the candidate \(c\) in \(M_1\).

In more conventional language the Dyen-Aberle principle of inclusion maintains that if a reconstructed form has more than one semantic reflex that reflex which is found in a larger number of primary subgroups is to be assigned to it, while competing semantic reflexes which are found in a smaller number of primary subgroups are to be treated as innovations. Semantic reflexes which have an equivalent distribution over primary subgroups are said to be unincluded; all unincluded meanings are assigned to the reconstructed form that they reflect, no matter what the number of such meanings (Dyen & Aberle 1974:18).

Table 2 presents an array of sibling terms in Austronesian languages with whole glosses. To a greater or lesser extent all of these glosses encompass more than one category of kin. To ensure that the Dyen-Aberle approach receives due consideration Table 3 reformulates the material of Table 2 to highlight the distribution of candidate terms (CT) over primary sibling categories (PSC). Only common glosses (represented by the number in parentheses following the glosses in Table 2) are displayed in Table 3:

**Table 3: Distribution of Four PMP Candidate Terms over Primary Sibling Categories**

<table>
<thead>
<tr>
<th>PSC</th>
<th>CT</th>
<th>WMP</th>
<th>CMP</th>
<th>OC</th>
</tr>
</thead>
<tbody>
<tr>
<td>(m.s.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>eB</td>
<td>betaw</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>ñaRa</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>kaka/aka</td>
<td>4,5</td>
<td>4,5</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>hua(n)ji</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yB</td>
<td>betaw</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>ñaRa</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>kaka/aka</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>hua(n)ji</td>
<td>4,5</td>
<td>4,5</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>eZ</td>
<td>betaw</td>
<td>1,2,3</td>
<td>2,3</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>ñaRa</td>
<td>---</td>
<td>3</td>
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</tr>
<tr>
<td>2</td>
<td>kaka/aka</td>
<td>4</td>
<td>4</td>
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</tr>
<tr>
<td>3</td>
<td>hua(n)ji</td>
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<tr>
<td>yZ</td>
<td>betaw</td>
<td>1,2,3</td>
<td>2,3</td>
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<tr>
<td>1</td>
<td>ñaRa</td>
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<tr>
<td>2</td>
<td>kaka/aka</td>
<td>---</td>
<td>---</td>
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</tr>
<tr>
<td>3</td>
<td>hua(n)ji</td>
<td>4</td>
<td>4</td>
<td>---</td>
</tr>
</tbody>
</table>
Applied to the data at hand the Dyen-Aberle approach to glossing reconstructed forms would require us to assign the following glosses to items (1)-(4): (1) *betaw 'cross-sibling', supported by Toba Batak (WMP) and Alune (CMP); also 'Z (m.s.)', supported by Ngaju Dayak (WMP), and by many CMP reflexes; (2) *ñaRa 'B (w.s.)', supported by Ngaju Dayak (WMP) and by many CMP reflexes; (3) *(k)aka 'elder sibling of the same sex', supported by Ata Manobo, Toba Batak, Dairi-Pakpak Batak, Sangir and several CMP reflexes (also 'elder sibling', supported by Komodo, Ngadha, Solorese, Wetan, Paulohi, Soboyo and many WMP reflexes); and (4) *hua(n)ji 'younger sibling of the same sex', supported by Ata Manobo, Toba Batak, Dairi-Pakpak Batak and several CMP reflexes (also 'younger sibling', supported by Komodo, Ngadha, Solorese, Wetan, Paulohi and many WMP reflexes). As I have argued elsewhere (Blust 1980b, 1987a) there are inherent limitations to the Dyen-Aberle method of “lexical reconstruction”, which is concerned exclusively with what Saussure called the semantic “signification” of linguistic forms, as opposed to their semantic ‘values’. As it happens, in this particular set of data the Dyen-Aberle approach comes closer to achieving satisfactory semantic coherence than is sometimes the case. However, it is evident that *betaw could not have meant both ‘cross-sibling’ and ‘Z (m.s.)’, especially in view of the fact that the only gloss which can be assigned to *ñaRa is ‘B (w.s.)’. PMP *betaw must have meant ‘Z (m.s.)’, and *ñaRa ‘B (w.s.)’, as their reflexes still do in Ngaju Dayak and in many CMP languages extending from Komodo in the western Lesser Sunda Islands to the Sula Archipelago in the north-central Molucca Islands.

By contrast to PMP *betaw and *ñaRa, the meaning of PMP *kaka/aka and *hua(n)ji remains an unresolved issue. In past work I have tended to assume a model of lexical categorisation in which semantic space is exhaustively partitioned into mutually exclusive categories. Systems of sibling terminology such as that of the Ngaju Dayak appear to
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contradict this model, since according to Hardeland (1859) NgD betaw means ‘Z(m.s.)’ and ñahE means ‘B(w.s.)’, but kaka/aka means ‘eB’ or ‘eZ’ and andi means ‘yB’ or ‘yZ’, without regard to sex of speaker (pahari means ‘parallel sibling’, without regard to relative age). In other words, some relationships may be expressed by two terms, presumably carrying different emphases (e.g. in Ngaju Dayak a man may call his eZ either betaw, emphasising the difference of sex, or aka, emphasising the difference of age, but may call his eB only aka). The difficulty with accepting this characterisation of the use of semantic space more generally is that the description of many terminologies in the literature is known to be inexplicit. For example, Koentjaraningrat (1972:82), drawing on an earlier report by Coolhaas, gives Manggarai ka?e as ‘eB, FBS, MZS’ and Manggarai ase as ‘yB’, but the more complete information provided by Verheijen (1970:100-101) and Gordon (1980:51-52) shows clearly that these terms are restricted to parallel siblings (and some other relationships not relevant to the present discussion). For these reasons I will leave open the question whether PMP *kaka/aka and *hua(n)ji applied exclusively to parallel siblings, or to siblings in general. In either case relative sex is a necessary component of the definition of PMP *betaw and *ñaRa, and the PMP system must, therefore, be classed as a further subtype of Murdock’s (1968) “Melanesian, or Relative Sex Type” of sibling terminology.

Another issue that may be raised in connection with the foregoing reconstruction is its critical dependence upon the Ngaju Dayak evidence. Virtually all CMP-speaking societies for which information is available have a terminological contrast for parallel and cross-siblings, and the terms *betaw and *ñaRa can easily be reconstructed for Proto Central Malayo-Polynesian. As several writers have noted, however, the parallel/cross contrast is rare in societies that speak WMP languages. All four Ngaju Dayak terms are cognate with the sibling terms of such CMP languages as Rotinese, and have essentially the same semantic values. Neither chance nor borrowing offers a plausible explanation for this agreement, and we are therefore forced to conclude that the Ngaju Dayak system, rare as it is among WMP-speaking peoples today, must be a retention of a system of sibling terminology that was once much more widespread in the Philippines and western Indonesia. This inference receives tangential support from the terminological systems of the Batak peoples of northern Sumatra, where Toba Batak /i-boto/, Simalungun Batak /botow/ ‘cross-sibling’ preserve a reflex of *betaw, albeit one that has undergone a widening of reference to include kin types that were originally subsumed by *betaw and *ñaRa together. A similar (historically independent) widening of reference is seen in Alune (CMP) /beta/ ‘cross-sibling’. Finally, the Berawan dialect of Long Terawan in northern Sarawak preserves another component of the original meaning of *betaw in the form /betaw/ ‘sister’ (Proctor 1979).17

Even with some indeterminacy regarding the scope of reference of PMP *kaka/aka and *hua(n)ji, the foregoing reconstruction of four PMP sibling terms distinguished by relative sex and relative age serves to remedy the muddled state of affairs found in Dempwolf (1938). Having said this it is legitimate to ask: “what have we achieved through this

17 It is unclear whether this form is adequately glossed. When I worked briefly with a Long Terawan speaker during my fieldwork in northern Sarawak in 1971 I recorded only /tukeh/ ‘elder sibling’, /tarëh/ ‘younger sibling’ and /padi?/ ‘sibling (in general)’. Proctor’s /betaw/ suggests that Long Terawan may in fact have a cross/parallel distinction in the sibling terminology that has until now gone unnoticed. The gloss that he provides for /betaw/ probably should be regarded as untrustworthy because of the all-pervasive gender bias that is commonly seen in the collection of kinship terms that make use of relative sex. Most fieldworkers, both anthropologists and linguists, are male, as are their informants. In such a situation if any cross-sibling term is collected one would expect it to be the term for ‘Z (m.s.)’.
reconstruction towards understanding the evolution of social organisation in Austronesian-speaking societies over approximately the past five millennia?".

Murdock (1968) answers this question for us. In a globally representative sample of 800 societies selected from the ethnographic literature (mostly in English, German and French), he has isolated seven major types of sibling terminology. His Type F, the "Melanesian, or Relative Sex Type" shows a statistically significant positive correlation with the presence of descent groups (in particular matrilineal descent groups). The clear inference from his tables of correlations (especially his Table 2), is that Proto Malayo-Polynesian society had descent groups – that is, corporate kin groups defined in terms of an apical ancestor.

5.2 THE HISTORICALLY SECONDARY SIBLING TERMS

If the foregoing reconstruction of PMP sibling terms was all that could be achieved through comparative linguistics it would indisputably be of some value to ethnology, but it would not represent a major triumph of linguistic methodology in addressing diachronic problems of social anthropology. What makes the comparative study of sibling terms in Austronesian far more interesting and methodologically important is the existence of a second set of terms for the cross-siblings which is even more widespread than the reflexes of *betaw and *ñaRa. In some cases this second set of cross-sibling terms involves true cognates, but in others it involves only lexical items of similar semantic structure. For reasons that will become apparent, these terms can be characterised as semantically derivative or morphologically complex. Significantly, no such competing comparisons exist for the terminology relating to parallel siblings. Consider the material of Table 4, organised as in Table 2. Literal morpheme glosses, which are given in parentheses, are: M = male, F = female, C = child, x = cross-sibling. Reconstructed morphemes are: PMP *ma-Ruqanay ‘male’, PMP *laki ‘male (probably originally of animals)’, PMP *anak ‘child; member of a social group’, PMP *bahi/ba-bahi/b-in-ahi/ba-b-in-ahi ‘female’: forms in square brackets are non-cognate, but exhibit a parallel semantic derivation.

**Table 4: Evidence for the Historically Secondary Cross-Sibling Terms**

<table>
<thead>
<tr>
<th>*(anak) bahi ‘Z (m.s.)’</th>
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</thead>
<tbody>
<tr>
<td>WMP:</td>
</tr>
<tr>
<td>PHILIPPINES</td>
</tr>
<tr>
<td>Bontok ka-babai-an (F)</td>
</tr>
<tr>
<td>[Ilongot bekur] (F)</td>
</tr>
<tr>
<td>Maranao bebai (F)</td>
</tr>
<tr>
<td>[Tiruray libun] (F)</td>
</tr>
<tr>
<td>WESTERN INDONESIA</td>
</tr>
<tr>
<td>Malagasy ana bavy (CF)</td>
</tr>
<tr>
<td>[Middle Malay kelaway] (F)</td>
</tr>
</tbody>
</table>

18 For the complex problem of reconstructing the PAN word for ‘female’ cf. Blust (1982c). Like the word for ‘female’, the word for ‘male’ can be reconstructed both as a simple stem and as an affixed form. Reflexes of the former include Paiwan /uqayLay/, Palauan /schaľ/ and Manggarai /rona/ (all < *Ruqanay); reflexes of the latter include Bintulu /manay/, Balinese /muani/, Sangir /mahuane/, Tae’ /muane/, Kambera /mini/, Motu /maruane/, Mono-Alu /manuale/ (< Met.), Tongan /Fa?ane/ and a number of other forms cited here as components of cross-sibling terms (all < *ma-Ruqanay).
Bolaang Mongondow bobai (F)
[Tae’ anak dara]¹⁹

CMP:
Sika whine (F)
Adonara bine (F)
Kambera ana wini (CF)
Savu na weni (CF)
[Leti narpuate] (xF)

OC:
Bileki hata vile (xF)
Bangasa vivini (F)
Eromanga veven (F)
Trukese feefiney (F)
Tongan tuo fefine (xF)
Hawaiian kua hine (xF)

(6) *(anak) ma-Ruqanay ‘B (w.s.)’

WMP:

PHILIPPINES
Bontok ka-lalaki-an (M)
Ilongot raki (M)
Maranao laki (M)
Tiruray lagey (M)

WESTERN INDONESIA
Malagasy ana dahy (CM)
Middle Malay moanay (M)
Bolaang Mongondow lolaki (M)
Tae’ anak muane (CM)

CMP:
Kambera ana mini (CM)
Savu na mone (CM)
Leti naramuani (xM)

OC:
Bileki hatamale (xM)
Bangasa mani (M)
Eromanga man (M)
Trukese mwääni (M)
Tongan tuo pa?ane (xM)
Hawaiian kua nane (xM)

Some of the above terms contain cognate morphemes. Thus, for Proto Philippines it appears safe to reconstruct *babahi ‘Z (m.s.)’ and *laki ‘B (w.s.)’, based on cognate forms in the Cordilleran languages of northern Luzon and Maranao of southern Mindanao (with further support for the second term from Tiruray). Similarly, for Proto Oceanic, Milke

¹⁹ Literally ‘child’ + ‘virgin/maiden’.
(1938) reconstructed *vavine ‘Z (m.s.)’, *mane ‘B (w.s.)’, based on widely distributed cognates in the Oceanic languages.

At the Proto Malayo-Polynesian level, however, the reconstruction of such semantically derivative or morphologically complex alternative terms becomes more problematic. It is prima facie plausible to posit *anak ma–Ruqanay ‘B (w.s.)’, based on Tae’ (WMP) anak muane/ and Kambera (CMP) /ana mini/. For many of the other terms, however, there is a lack of true cognation, as with the Malagasy terms /ana bavyl ‘Z (m.s.)’, /ana dahyl ‘B (w.s.)’, next to Kambera /ana wini/ ‘Z (m.s.)’, /ana mini/ ‘B (w.s.)’. Rather than true cognation what these terms share is a common semantic history, that is, a historical derivation from terms the primary sense of which is ‘male/female’, or the morpheme meaning ‘child’ plus one of these gender modifiers. The former, semantically derivative type, based on the morphemes meaning ‘male’ or ‘female’, includes WMP, CMP and OC languages, while the latter, morphologically complex type (‘child’ + ‘male/female’) includes only WMP and CMP languages. In either case the material in Table 4 presents us with terms that compete with the monomorphemic and semantically derivative cross-sibling terms that have already been proposed. Following the Dyen-Aberle method of lexical reconstruction, but my subgrouping of Austronesian, we would be forced to reconstruct both PMP *betaw and *(anak) bahi in the meaning ‘Z(m.s.)’, and both PMP *ñaRa and *(anak) ma-Ruqanay/laki in the meaning ‘B(w.s.)’. If WMP and CMP languages are assigned to a single subgroup coordinate with Oceanic, as proposed by Dyen (1985), these semantically derivative and morphologically complex forms become the sole PMP candidates for the meanings ‘Z(m.s.)’ and ‘B(w.s.)’.

The first point to note about comparisons (5) and (6) is that they provide an independent line of evidence indicating a cross/parallel distinction in the sibling terminology of Proto Malayo-Polynesian, hence strengthening our inference that descent groups were present in PMP society.

The second point to note about comparisons (5) and (6) is that they are either semantically derivative (derived from terms that carry the primary sense ‘male/female’) or morphologically complex. While the extension of terms that carry the primary sense ‘male/female’ to ‘B/Z’ is not surprising, the similar extension of terms that include the morpheme ‘child’ certainly is. Indeed, there is no obvious social structural reason why a reflex of PMP *anak ‘child’ would form part of any sibling term. I will refer to the seeming obscurity of this historical derivation as a problem of ‘morphological opacity’.

The third point to note about comparisons (5) and (6) is that when reflexes of *anak plus an apparent gender modifier are possessed it becomes clear that they do not have a head-modifier structure. For Tae’, van der Veen (1940:17ff.) cites /anak muane-na/ ‘her brother’, but /anak-ku muane/ ‘my son’ (cf. /anak-na tau/ ‘someone else’s child’ as evidence that the first and third person singular possessive markers do not differ positionally). Fischer (1957:5, note), citing Onvlee, makes a parallel observation about Kambera: “Referring to a brother the words ana and mini are seen as an inseparable whole, while as an indication for a son they are two. A woman speaking of her brother will say anamingi (‘my brother’) while speaking of her son she will use the possessive form anan mine mini, my son”. Together these observations on the syntax of possession in Tae’ (a WMP language), and Kambera (a CMP language) show unmistakably that PMP *anak ma–Ruqanay had two functions: (1) it was a head-modifier construction meaning ‘son’, and (2) it was a syntactic unit with some other, as yet undetermined, meaning.
The fourth point to note about comparisons (5) and (6) is that they are found scattered among reflexes of *nāRa and *betaw in languages that are either closely related, or neighbours, or both. Thus Waijewa (west Sumba) has /wotol/, /na?al/, while Memboro (north-west Sumba) has /ana wini/, /ana moni/ for the female and male cross-siblings respectively, and similarly with Roti /fetol/, /nak/ next to Savu /ana wini/, /ana mone/. In the most extreme cases several of the languages of eastern Flores and the Solor Archipelago have one term from each system, as with Sika /nara/ ‘B (w.s.)’, but /wine/ ‘Z (m.s.)’ and Solorese /naa/ ‘B (w.s.)’, but /bina/ ‘Z (m.s.)’.

The final point that I wish to make in this section is that no attested Austronesian-speaking society is known to have more than one term for either of the cross-siblings. To attribute both *nāRa and *anak ma-Ruqanay to Proto Malayo-Polynesian in the meaning ‘B (w.s.)’ would be to posit a duplication of terms with the same semantic value that is unprecedented in any of the languages accessible to direct observation. Moreover, although *betaw is reflected with the meaning ‘female’ in some of the languages of the Lesser Sunda Islands the primary meaning of PMP *nāRa and *betaw clearly was ‘B (w.s.)’ and ‘Z (m.s.)’. In this sense these terms can be considered as semantically non-derivative. The matter is, of course, very different with the second set of cross-sibling terms, which have as their primary meaning either ‘male/female’ or a compound term containing a reflex of *anak ‘child’ plus ‘male’ or ‘female’.

To conclude, despite the widespread occurrence of semantically derivative cross-sibling terms in Austronesian languages, I find no convincing basis for reconstructing forms with the semantic structure ‘male/female’ or ‘child’ + ‘male/female’ as cross-sibling terms in Proto Malayo-Polynesian. The total absence of attested languages with more than one set of cross-sibling terms, and the semantically derivative or morphologically complex character of the forms subsumed under comparisons (5) and (6) strongly suggests that these terms have arisen independently in the meaning ‘cross-sibling’. But if so, what is their historical source, and what was the dynamic that drove the speakers of widely separated languages to follow similar paths of replacing *nāRa and *betaw with terms that must earlier have had some other referent?

6. THE CROSS-SIBLING SUBSTITUTION DRIFTS

Terms for the wife-giving and wife-taking groups are known for only a small number of societies that are reported to practice asymmetric alliance. Where they are known, however, they exhibit an interesting correspondence to the terms for cross-siblings. Examples are:

(1) KARO BATAK (northern Sumatra): /kalimbubu/ ‘wife-givers’ (no other clearly related meaning known); /anak beru/ (lit. ‘child’ + ‘female’) = ‘wife-takers’ (Neumann 1951, Singarimbun 1975, Needham 1978)

(2) DAIIRI-PAKPAK BATAK (northern Sumatra): /kula kula/ ‘wife-givers’ (no other clearly related meaning known); /anak hamberu/ (lit. ‘child’ + ‘daughter’) = ‘wife-takers’ (Manik 1977)

Needham (1980) writes Veveva and Mamboru for Waijewa and Memboro in Fischer (1957) and the older Dutch sources. His map of the Sumbanese principalities (p.23) shows the centre of the Veveva and Mamburu domains to be only some 30 km. apart, while their borders, separated by the tiny principality of Tana Rivu, come to within 3 or 4 km. of one another.
(3) MANGGARAI (west Flores): /anak rona/ (lit. ‘child’ + ‘male’) = ‘wife-givers’; /anak wina/ (lit. ‘child’ + ‘female’) = ‘wife-takers’ (Gordon 1980)

(4) ATONI (west Timor): /an mone/ (lit. ‘child’ + ‘male’) = ‘wife-givers’; /an feto/ (lit. ‘child’ + ‘female’) = ‘wife-takers’ (Cunningham 1964)


Surely this correspondence of morphologically transparent terminology for affinal groups involved in asymmetric alliance and of morphologically opaque terminology for cross-siblings cannot be accidental. But if not, what is its significance for the problem at hand?

Basically three alternatives are available: (1) treat the resemblance as coincidental, (2) assume that cross-sibling terms with the semantic structure ‘male/female’ or ‘child’ plus ‘male/female’ were historically transferred to the affinal groups in some societies that practiced asymmetric alliance, or (3) assume that terms with the semantic structure ‘male/female’ or ‘child’ + ‘male/female’ which designated the affinal groups in systems of asymmetric alliance came to apply instead to the cross-siblings.

Alternative (1) would provide no satisfactory explanation for what is clearly a greater-than-chance similarity between terms that refer to the most pivotal relationships in systems of matrilateral cousin marriage, the first on the level of the individual, the second on the level of the social group.21

Alternative (2) again raises two questions: (1) why there are multiple PMP terms for the cross-siblings, when no daughter language has more than one term for either relationship, and (2) why terms would be innovated in meanings for which they are semantically unmotivated (‘child’ + ‘male/female’ for the cross-siblings) and then transferred to meanings for which they are semantically motivated.

Alternative (3) avoids both the problem of synonymy and the problem of morphological opacity. Apart from these negative advantages alternative (3) is also positively motivated. Reference to Table 1 shows that in dual symbolic classifications generally wife-givers are conceptually aligned with ‘male’ and ‘superior’, while wife-takers are conceptually aligned with ‘female’ and ‘inferior’. As the sources clearly indicate, ‘male’ and ‘female’ in such classificatory schemas are to be understood as symbolic categories, not as sexual references. The wife-givers are thus ‘male’ even though they are the givers of women, and thus belong to the lineage of the wife. For the terminology relating to affinal groups to be applied to the cross-siblings, however, we must assume a transfer of group viewpoint from the individual participants in a marriage to their brother-sister parents. But how could such a transfer of viewpoint come about?

Fortunately, we need not resort to speculation about the native participant viewpoint in order to answer this question and thereby solve a major problem in understanding the history of sibling terminology in Austronesian languages. The answer rather is provided in the

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21 Robin Fox (1967:236) regards “the fate of the brother-sister bond as in some ways ‘central’ to the elaboration of kinship systems”. The evidence for the cross-sibling substitution drifts in Austronesian languages supports this statement entirely, at least in so far as it applies to systems of asymmetric alliance.
careful ethnographic work that has been done on CMP-speaking societies in recent years. Regarding the terms for wife-giving and wife-taking groups among the Huaulu of Seram, Valeri (1980:185) has the following to say:

Literally, “hahamana” means “male veranda”; “hahapina”, “female veranda”. “Veranda” here is a synecdoche for “house” (luma): it symbolises the social group associated with the luma in its relationship to another group, since the veranda is the part of the house reserved for social encounters. Like most peoples in central Seram, the Huaulu connote this opposition by the categorical opposition between “children of the brother (that is, hahamana)” and “children of the sister (hahapina).” This is quite logical, since otherwise the symbolic identification of the wife-givers with the male side would be absurd: if the hahamana/hahapina relationship were conceptualised, not in terms of the brother/sister relationship, but in terms of the affinal relationship between wife and husband, the wife-givers side would be female, not male. As a matter of fact, the point of view is that of a brother: the male sibling stays with his paternal lineage, the female sibling is given away; male children stay with their father, female children are married out. Not surprisingly, “hahamana” is also glossed “male child” and “hahapina” “female child.” It is evident that in native conceptualisation the wife-giving/wife-taking relationship is subsumed under more fundamental relationships: children of the brother/children of the sister, brother/sister, and finally, male/female.

This quotation from Valeri could hardly be clearer or more appropriate to our purpose. If the ‘extra’ set of cross-sibling terms that we have discovered did not refer to cross-siblings in Proto Malayo-Polynesian (since *beta and *iiaRa had those meanings) they must have had some other meaning. The only other meaning that can be attributed to them is that of the affinal groups to which they refer in attested systems of asymmetric alliance. That this was the probable direction of semantic change (from ‘WG’ to ‘B (w.s.)’ and from ‘WT’ to ‘Z (m.s.)’) is made more likely by the alignment of wife-givers with ‘male’ and of wife-takers with ‘female’ in the dual symbolic classifications of these same societies. Those terms which reflect *anak plus a gender qualifier are glossed by Fox (1980c:333) as ‘children of the brother’ (= wife-givers) and ‘children of the sister’ (= wife-takers). They could as easily be glossed ‘member of the male group’ and ‘member of the female group’, since PMP *anak is widely reflected not only in the literal sense ‘child’, but also in the wider sense ‘member of a (social, occupational, etc.) group’.

In addition to the names of wife-givers and wife-takers noted at the beginning of this section, compare, for example, Malay anak kapal (= ‘child’ + ‘ship’) ‘crewmember of a ship’, Old Javanese anak wanwa (= ‘child’ + ‘inhabited place’) ‘person belonging to the wanwa community’, Erai anili (= ‘child’ + ‘village’) ‘villagers’, and the non-cognate but structurally parallel Hawaiian kama?ina (= ‘child’ + ‘land’) ‘native-born’. In view of this range of meanings Needham (pers.comm.) questions whether *anak should be glossed ‘child’, or should rather be given a more general gloss such as ‘junior associate’ or ‘minor complement’. In effect he denies any special value to the meaning ‘child’ as opposed to other meanings with which it shares a category membership. The basic problem with his position is that it fails to explain why the category membership associated with reflexes of *anak may show considerable cross-linguistic variation, yet the category itself is invariably recognised by its inclusion of the meaning ‘child’. With respect to the morphologically complex terms, Needham (1978:118) renders Karo Batak anak beru as ‘people of the woman,’ ‘the woman’s people,’ or ‘one’s daughter’s (or sister’s) family.’ I regard this as preferable to Fox’s translation of cross-sibling terms of similar semantic structure in eastern Indonesia, since it recognises that anak is not to be translated literally as ‘child’. However, both Fox and Needham translate ‘male’ and ‘female’ as literal sexual references rather than as labels in a dual
Before concluding it will be well for us to take stock of what the comparative study of sibling terms has enabled us to infer about the history of social change in Austronesian-speaking societies. Firstly, terms such as Kambera (eastern Sumba) /ana mini/ 'B (w.s.)', /ana wini/ 'Z (m.s.)' and Memboro (north-west Sumba) /ana moni/ 'B (w.s.)', /ana wini/ 'Z (m.s.)' reflect PMP expressions which almost certainly did not refer to the cross-siblings, but rather to the wife-giving and wife-taking groups in a system of asymmetric alliance. When they came to be applied instead to the cross-siblings, they replaced the reflexes of PMP *ñaRa and *betaw which are still retained in such closely related languages as that of Waijewa (west Sumba), which has /naʔa/ 'B (w.s.)' and /woʔol/ 'Z (m.s.)'.

Many social anthropologists and ethnologists with an interest in comparative questions will no doubt be willing to grant this much. But how without a serious breach of method can we stop here? If the societies of eastern Sumba and Savu have acquired new cross-sibling terms from the terms for affinal groups how are we to explain the parallel terminological innovations in various languages of the northern and southern Philippines, in Malagasy, in Middle Malay, in Sangir, in southern Toraja (Tae’) and other languages of Sulawesi, and in Proto Oceanic, the ancestor of some 450 modern Austronesian languages? Unlike the situation among CMP-speaking groups, where MBD marriage is common, none of these societies have had systems of asymmetric alliance within the ethnographic present. How can the innovative terms for cross-siblings be explained from earlier terms for wife-givers and wife-takers if wife-giving and wife-taking corporate groups do not now exist in these societies?

Linguists will not find the general form of this question difficult, since some of the classical discoveries in Indo-European linguistics involved the use of observations about one language to explain observations in another. Grimm’s Law, as it was initially formulated, contained many apparent exceptions. Verner’s Law explained a large number of these as regular developments by demonstrating that the Germanic languages had retained Proto Indo-European contrastive accent at the time of the First Germanic Consonant Shift. Yet no attested Germanic language (including the extinct Gothic, and Old Norse, for which historical texts are available) retains the original accent pattern, which was inferred largely from agreements between Sanskrit and Greek. What the Germanic languages show is rather the traces of an earlier accent system as it affected the development of adjacent consonants perhaps 2,500 years ago. To echo the form of the question at the conclusion of the preceding paragraph, we might equally well ask: How can Verner’s Law explain any exception to Grimm’s Law if the Proto Indo-European accent has not been preserved in any attested Germanic language?

Returning to the original question, there is no easy answer unless we propose that at the time of terminological transfer the societies in question practised asymmetric alliance. Without such a hypothesis there is no explanation for the appearance of an ‘extra’ set of cross-sibling terms without a corresponding ‘extra’ set of parallel sibling terms. Moreover, it is clear that the reflexes of PMP *ñaRa and *betaw were replaced independently in such CMP languages as Kambera or Memboro of Sumba and in such WMP languages as Bontok, Malagasy or Tae’. In other words, the historical shift of reference from wife-giving and wife-taking group to the cross-siblings was a drift – a change that took place independently
and recurrently in a number of societies over the millennia as the Austronesian-speaking peoples separated and diversified from a common ancestral community. These changes, which we can call the ‘cross-sibling substitution drifts’, show unmistakeably that the motor of linguistic drift need not be limited to the persistent operation of inherited structural pressures in language. Rather, linguistic drift can be also be powered by the persistent operation of inherited structural pressures in social organisation.

7. OBJECTIONS AND ALTERNATIVES

At the very least, anyone who wishes to object to the foregoing proposals must provide alternative answers to the following questions: (1) Why, next to reflexes of PMP *ñaRa and *betaaw, do we find reflexes of an ‘extra’ set of cross-sibling terms in a number of WMP, CMP and OC languages when: (a) only one set of reflexes is found for the parallel sibling terms, and (b) no attested language has more than one set of terms for the cross-siblings?; (2) Why is this extra set of terms semantically derivative (primary sense = ‘male/female’) or morphologically complex (primary sense = ‘child/member of social group’ + ‘male/female’), while *ñaRa and *betaaw are semantically primary and morphologically simple?; (3) Why would this extra set of terms evolve independently in a number of widely scattered languages?; and (4) Why are terms of parallel semantic structure (‘child/member of a social group’ + ‘male/female’) found in the meanings ‘wife-giver’ and ‘wife-taker’ both in WMP and in CMP languages? Needless to say, any set of alternative answers to these questions should form part of a coherent theory of the evolution of social organisation in the Austronesian-speaking world.

One objection that is likely to be raised against the claim that PMP society practised asymmetric alliance comes from what might be called the ‘internal logic’ of kinship systems. In any society with exclusive matrilateral cross-cousin marriage certain terminological equations are to be expected (e.g. MB=WF, MBS=WB), while others are not (e.g. MB=HF, MB=FZH). This is not the place for me to attempt a reconstruction of the entire set of PMP kinship terms; indeed, the force of my argument requires no reconstructed terminology beyond the sibling terms themselves. Nonetheless, given the probability that terminological incompatibilities will present an issue it might be worthwhile to briefly consider one additional cognate set which was the subject of some debate in reactions to Blust (1980b).

Blust (1980b:213) reconstructed PMP *ma(n)tuqa (now written *ma-tuqah) with the meanings ‘MB’, ‘WF’, adding in a footnote ‘Possibly also WM, HF, HM’. Aberle (1980:228) correctly pointed out that the evidence cited in Blust (1980b) actually supports an association of PMP *ma-tuqah with all four affinal meanings, as well as ‘MB’. He then added “Yet in a system of prescriptive alliance one expects only the equation of MB and WF, if the terminology reflects MBD marriage. If, on the other hand, MB is equated with WF and HF the result is compatible with symmetric rather than asymmetric exchange, while the equation of MB and spouse’s mother is anomalous under either hypothesis”.

It is important to recognise that application of the Dyen/Aberle procedures simply maps a reconstructed morpheme (‘candidate’) onto those universal kin categories which are associated with its ‘unincluded’ reflexes. The result may be a concatenation of kin categories which is unlikely to form a genealogical category in any natural language. When such a result is obtained from mechanical application of the procedures it must be subjected to further analysis. In the case at hand reflexes of PMP *ma-tuqah are associated with ‘MB’ in WMP,
CMP and OC languages, and with 'WF', 'WM', 'HF', 'HM' in WMP and CMP languages. Given the subgrouping which I adopt (section 3.3), it follows mechanically that *ma-tuqah must be glossed 'MB', 'WF', 'WM', 'HF', 'HM'. Needless to say, such a concatenation of categories is the product of comparing often incomplete sources, and may contain both too little and too much. Indeed, it is clear that the substring 'MB=WF=WM' logically entails 'MBW', and so expands to 'MB=WF=MBW=WM'.

Even without the foregoing caveat, closer attention to the material in Blust (1980b:213, Table 4) shows that next to the meanings that Aberle associates with PMP *ma-tuqah we must also associate the more restricted set of glosses 'MB', 'WF', 'WM', since matua in Nias (WMP) and tu?a in some dialects of Manggarai (CMP) mean 'WF', 'WM', but do not refer to the parents-in-law of a woman. Although Dyen and Aberle (1974) treat the role of inclusion in lexical reconstruction at some length, I find no discussion of how they treat two unincluded candidates when one of these is semantically a subset of the other (as *ma-tuqah 'MB=WF=MBW=WM' is to *ma-tuqah 'MB=WF=MBW=WM=FZH=HM'). The only guiding principle which they make explicit (p.18) is that "an unincluded candidate is inferred to have had...the meaning of the list in which it is found". In accordance with this principle the Dyen-Aberle method requires not the reconstruction PMP *ma-tuqah 'MB=WF=MBW=WM=FZH=HM', but both this meaning and 'MB=WF=MBW=WM'.

Although he subsequently dismisses not only my conclusions, but also his own on the grounds that "the subgrouping is not justified" (1980:230), Aberle's inference of symmetric alliance can in any case be justified only in part, since the evidence from PMP *ma-tuqah actually is contradictory, supporting both an inference of symmetric alliance and an inference of asymmetric alliance.23

Aberle's objections raise two interrelated questions: (1) Do kinship terminology and behaviour always reflect one another? (2) If not, can comparative linguistics resolve any issues in the reconstruction of prehistoric social organisation? Needham (1967, 1984) has argued for an evolution from symmetric to asymmetric terminology in the societies of the Lesser Sunda Islands of eastern Indonesia. His principle argument is that the "transformation" of a symmetric to an asymmetric system is inherently unlikely because (1984:229):

...the normal development of social forms is in the direction of increasing intricacy. For an asymmetric system to change into a symmetric system would involve a reduction in the number of terms, and a reduction in the number of lines from three to two. This is a transformation in the direction of economy of means and simplicity of structure; it is not formally self-contradictory or otherwise invalid, but it is empirically improbable. It would mean the abolition of terminological distinctions, in the medial three genealogical levels at least, in

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23 Dyen (1985:365, 388) similarly objects to the reconstruction of PMP *ma-tuqah 'MB/WF', but on different grounds, claiming (p.365) that "Each meaning is found in a separate branch of PMP: the first in Proto Oceanic (PO) and the second in Proto Western Malayo-Polynesian". Entirely apart from our disagreement over the methodological issues associated with what he calls "single witness" comparisons (called "no candidate" comparisons in Blust 1987a), Dyen's statement can only be made by ignoring the WMP reflexes of *ma-tuqah which are associated with the meaning 'MB' (Blust 1980b, Table 4), and the considerable evidence for a Central-Eastern Malayo-Polynesian subgroup (Blust 1974a, 1983-1984b, 1993).
favour of equivalences. This is an operation of which, so far as I can discover, there are no well-attested ethnographic instances.

Needham’s claim regarding the development of social forms “in the direction of increasing intricacy” expresses an implicit theory of unilinear evolution. In this sense his views are not unlike those of Brown (1984), who maintains that the evolution of terminological systems in language is towards an ever increasing number of general category distinctions, correlated with an ever increasing scale of societal complexity. Just as Brown’s evolutionary arguments are dubious (Blust 1985), so are Needham’s. In fact, Needham provides no concrete evidence for his assertion, maintaining simply that its converse “is empirically improbable”.

Although he offers no developed argument in support of his claim, Needham’s “normal development of social forms” makes an explicit linguistic prediction: the change from symmetric to asymmetric terminologies requires terminological innovations to fill the increasing number of distinctions that must be recognised in a (minimally) three-line system arising from an earlier two-line system. In particular, the equivalences FZ=WM, and FZH=WF in a two-line system become non-equivalences in a three-line system, creating a need for new terms in the meanings FZ and FZH. I am aware of four cognate sets on the PMP level which evidently referred to kin of the parental generation. The reconstructions to which these can be assigned are: (1) *ina, (2) *ama, (3) *ma-tuqah, and (4) *aya. Table 5 sets out the glosses which I propose for these terms:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meanings</th>
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<tbody>
<tr>
<td>*ina</td>
<td>M, MZ, FBW</td>
</tr>
<tr>
<td>*ama</td>
<td>F, FB, MZH</td>
</tr>
<tr>
<td>*ma-tuqah</td>
<td>MB, MBW, (WF), (WM)</td>
</tr>
<tr>
<td>*aya</td>
<td>FZ, FZH, (HF), (HM)</td>
</tr>
</tbody>
</table>

The glosses assigned to PMP *ina and *ama require little justification, as they are almost universally supported in Austronesian languages. As noted in Blust (1980b), both *ma-tuqah and *aya clearly referred to relatives of the parental generation. The former is widely reflected in Oceanic languages in the meaning ‘MB’, and was reconstructed for Proto Oceanic in this meaning by Milke (1958). Similar meanings appear in some CMP languages, as with Manggarai /tuʔa ata rona/ ‘MB’ and Fordat /dua/ ‘owner, sir, master; MB (in so far as he is empowered to oversee his ZC)’, and a wider avuncular reference appears in such WMP languages as Mukah (Sarawak) /tuaʔ/ ‘FB, MB, FZH, MZH’. On the other hand, *ma-tuqah is reflected in the meaning ‘WF, WM, HF, HM’ both in WMP and in CMP languages. In attempting to reconcile these glosses with a single reconstructed morpheme a conflict arises. The gloss ‘MB, MBW, WF, WM, HF, HM’ is consistent neither with asymmetric nor with symmetric exchange, since the former would exclude ‘HF, HM’ (hence: ‘MB, MBW, WF, WM’) and the latter would include ‘FZ, FZH’ (hence: ‘MB, 24

Allen (1989) proposes a more general model of semantic evolution which predicts that symmetric terminologies must precede asymmetric terminologies. His concern is with the evolution of kinship terminologies throughout the span of human history rather than with the more recent evolution of kinship terminologies within the context of particular language families. Although claims about longer evolutionary trends presumably would hold true for shorter evolutionary trends as well (since in his model the course of change is unidirectional), he does not directly address any set of real data.
MBW, WF, WM, HF, HM, FZ, FZH'). But it is evident that we must also reconstruct PMP *aya as a kin term of the parental generation, and this contributes to a resolution of the meaning of *ma-tuqah. Unlike PMP *ma-tuqah, reflexes of *aya have no known affinal senses. As noted in Blust (1980b) this difference in semantic profile between reflexes of the two terms almost certainly is due to the dominance of male viewpoint in the historical evolution of kinship terms that make use of a parameter of relative sex. Although both *ma-tuqah and *aya were affinal terms, the former meant ‘parent-in-law’ only to a male speaker, and the latter only to a female speaker. Most reflexes of *aya mean either ‘mother’ or ‘father’. In this sense they are fundamentally different from reflexes of *ina (which is never reflected in the meaning ‘father’), *ama (which is never reflected in the meaning ‘mother’), and *ma-tuqah, which shows no traces of sexual polarity. Since a terminology of symmetric exchange requires only a single term for parental cross-siblings, their spouses, and the parents-in-law of Ego, Needham’s hypothesis of a general evolution from symmetric to asymmetric terminologies clearly is inconsistent with the available linguistic evidence (some of which has been in print for over a decade).25

Despite this criticism Needham (1984) is a valuable contribution in a number of respects. In his paper Needham examines the terminologies of 15 societies in the Lesser Sunda Islands of eastern Indonesia. He finds that seven of these are consistently and unambiguously symmetric (2) or asymmetric (5), while the remaining eight are inconsistent, ambiguous or otherwise problematic. In all, eight of the 15 terminologies show some symmetric features. Despite these terminological differences all 15 societies practise (or traditionally practised) asymmetric alliance. Since changes in terminology are likely to lag behind changes in social organisation Needham sees in this inconsistency between terminology and behaviour further support for his inference of an evolution from symmetric to asymmetric terminologies, and by implication a parallel evolution from symmetric to asymmetric exchange.

But if terminology and behaviour do not reflect one another in half of the societies in Needham’s sample, how can we be sure that they did in Proto Malayo-Polynesian? The conclusion to be drawn from Needham’s data in conjunction with the cross-sibling substitution drifts is that asymmetric alliance as a system of social organisation is inferrable for PMP regardless of the terminological system that we reconstruct. Far from being a cause for discouragement, the lack of correspondence between terminology and behaviour in attested societies need not stand in the way of inferences about earlier forms of social organisation that are based on the study of cognate terminology. The power of the comparative method of linguistics is that inferences supported by it need not be restricted to ‘horizontal’ relationships within a reconstructed system, but include ‘vertical’ relationships.

Despite our differences on several important points of method, Aberle (1980:229) agrees that PMP *aya probably meant ‘FZ’. The evidence necessary to reach this conclusion through the procedures which he regards as indispensable is contained in: (WMP) Western Bukidnon Manobo /aya/ ‘MZ, FZ’, Seru /aya/ ‘MZ, FZ, MB, FB’; (CMP) Sika /aala/ ‘FZ’, Moa /yei/ ‘MB, FB’; (OC) Motu /lala/ ‘FZ’, Dobu /yaai-nai/ ‘all females of the first generation ascendant of father’s village’ (Fortune 1963[1932]:37). Even without these direct indications of a reference to the paternal aunt I believe the inference of PMP *aya ‘FZ, FZH’ would be forced by four considerations: (1) the term *aya must be reconstructed for PMP and assigned a gloss; (2) the gloss must refer to a relative of the parental generation; (3) this relative cannot have been either parent (since *ina meant ‘mother’ and *ama meant ‘father’, and reflexes of these terms invariably refer to the same parent without cross-over of sex); and (4) this relative cannot have been the maternal uncle, since *aya is never reflected in that meaning. Both by a process of elimination, and by attempting to come to terms with the fact that reflexes refer with almost equal frequency to a female and to a male relative, we are then left with no reasonable alternative to the conclusion that PMP *aya meant ‘FZ, FZH’.
arising from the comparison of heterosemantic cognates. If it was the case that speakers of Proto Malayo-Polynesian practised symmetric rather than asymmetric alliance we would have no theoretical basis for explaining the peculiar set of observations that I have labelled the ‘cross-sibling substitution drifts’, since these require the persistence over many generations of a system of marital alliance characterised by descent group hierarchy (‘male/superior/wife-givers’ vs ‘female/inferior/wife-takers’). These remarkable linguistic developments would, in effect, become a drift without a motive force, a collection of surprising parallel changes that have no statable cause.

Finally, the objection may be raised that I propose no concrete steps to show how a system of asymmetric alliance could evolve into any of the other types of social organisation which are found among Austronesian-speaking peoples today. As a linguist I make no claims to expertise in kinship theory. While I am able to propose a dynamic of terminological change, I do not feel that it is my place to propose a dynamic of social change; this is, after all, the domain of the social anthropologist. In a similar vein, Forth (1990) engages in linguistic comparison, but excuses himself from proposing reconstructions (and hence explicitly accounting for sound correspondences) on the grounds that he is not a linguist. In attempting the reconstruction of linguistic forms and their meanings all that I feel obligated to address is the reconstructed baseline to which an evolutionary hypothesis might apply. As with an earlier proposal which reconstructed matrilineal descent as the predecessor of the presently patrilineal societies of the south-eastern Solomon Islands (Blust 1986-87), I leave it to the social anthropologist to work out the mechanisms through which the reconstructed system evolved into its descendant forms.

APPENDIX

Because the sibling terminologies discussed in the body of this paper are displayed in cognate sets, they do not appear as integral wholes. To facilitate easy reference this appendix presents the full sets of sibling terms for all languages mentioned in the text which make use of a parameter of relative sex. This serves to show at a glance that Murdock (1968) not only underestimated the extent to which relative sex terminologies occur in the Philippines and western Indonesia, but also failed to recognise that similar systems must be reconstructed for Proto Philippines (*laki ‘B (w.s.)’, *ba-bahi ‘Z (m.s.)’), and for Proto Malayo-Polynesian (*ñaRa ‘B (w.s.)’, *betaw ‘Z (m.s.)’). For reasons of space (and because little would be gained from doing so) I do not consider the extension of these terms to collateral relatives.

The type of sibling terminology that I attribute to Proto Malayo-Polynesian corresponds to Type 12 in Nerlove and Romney (1967), with the proviso that the elder/younger terms may have applied to cross-siblings as well as to parallel siblings. Although Murdock (1968:7) reportedly consulted sources for 104 societies which speak “Malayo-Polynesian” languages, it is noteworthy that he does not mention this structure at all among the four varieties that he subsumes under his Type F, the “Melanesian, or Relative Sex Type”. There are two explanations for this curious oversight. Firstly, as he himself notes (1968:1), his coverage of eastern Indonesia is inadequate. More seriously, however, Murdock overlooked the existence of a relative sex parameter in the sibling terminology of a number of WMP-speaking societies because (like most social anthropologists) he failed to use available linguistic sources, as opposed to ethnographic sources. The possible excuse that linguistic sources are likely to be less accurate than ethnographic sources in glossing kinship terminology simply does not bear close scrutiny. Among linguistic sources that provide
explicit evidence of a relative sex distinction in the sibling terminology of WMP languages are: (1) Reid (1976) for Bontok of northern Luzon, (2) McKaughan and Macaraya (1967) for Maranao, (3) Elkins (1968) for Western Bukidnon Manobo, (4) Schlegel (1971) for Tiruray, all of southern Mindanao, Philippines, (5) Hardeland (1859) for Ngaju Dayak of south-east Borneo, (6) Richardson (1885) for Malagasy, (7) Warneck (1977[1906]) for Toba Batak of northern Sumatra, (8) Helfrich (1904) for Middle Malay of eastern Sumatra, (9) Steller and Aebersold (1959) for Sangir of northern Sulawesi, (10) Dunnebier (1951) for Bolaang Mongondow of north-central Sulawesi, and (11) van der Veen (1940) for southern Toraja of central Sulawesi. Although some of these sources were not available when Murdock published his study, more than half of them were. As Fox (1988b:38) has pointed out, Kroeber’s (1919) reconstruction of the “ancient Philippine” kinship system probably contains some critical lacunae, including “terms for male and female in Ego’s generation”. Fox could have determined this for himself by checking the relevant dictionaries. The task is now made easier by the publication of Elkins and Hendrickson (EH) (1984), although this publication does not include data on Bontok or Ilongot.

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<tr>
<th>BONTOK</th>
<th>ILONGOT</th>
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<tbody>
<tr>
<td>(Reid 1976)</td>
<td>(Rosaldo &amp; Rosaldo 1975)</td>
</tr>
<tr>
<td>etad</td>
<td>katan'agi</td>
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<tr>
<td>iyon'a</td>
<td>eB</td>
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<td>naodi</td>
<td>yB</td>
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<tr>
<td>ka-lalaki-an</td>
<td>xm</td>
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<tr>
<td>ka-babai-an</td>
<td>xf</td>
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<tr>
<td>MANOBO, W. BUKIDNON</td>
<td>MANOBO, ATA</td>
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<tr>
<td>(EH 1984)</td>
<td>(EH 1984)</td>
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<tr>
<td>suled</td>
<td>kako-y</td>
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<tr>
<td>me’emahan</td>
<td>hari</td>
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<td>etevey</td>
<td>ma’ama</td>
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<tr>
<td>(variants: system changing)</td>
<td>ataboy</td>
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<tr>
<td>BINUKID</td>
<td>KALAGAN, TAGAKAULU</td>
</tr>
<tr>
<td>(EH 1984)</td>
<td>(EH 1984)</td>
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<td>MANOBO, DIBABAWON</td>
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<td>(EH 1984)</td>
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<tr>
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<td>su’un</td>
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<td>hadi</td>
<td>ma’ama</td>
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<td>TIRURAY</td>
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<td>(EH 1984)</td>
<td>(Schlegel 1971)</td>
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<td>twogu</td>
<td>ofo?</td>
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<td>twoli</td>
<td>tuwarey</td>
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<td>logi</td>
<td>lagey</td>
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<td>libun</td>
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MARANAO
(McKaughan & Macaraya 1967)
pagari/panaman Sb
kaka e(=e//?)
ari y(=y//?)
laki xm
babai Z (=xf)

NGAJU DAYAK
(Hardeiland 1859)
aka/kaka eSb
andi ySb
pahari //
ñahE xm
betaw xf

KARO BATAK
(Singarimbun 1975)
kaka eSb
agi ySb
senina //
turaj x
WG: kalimbubu
WT: anak beru

TOBA BATAK
(Vergouwen 1964, Warneck 1977)
haha e//
agi y//
i-boto x
WG: hula-hula
WT: boru

REJANG
(Lebar 1972a)
kako-? eSb (=e//?)
asua? ySb (=y//?)
ñuaneui xm
klaweui xf

BOLAANG MONGONDOW
(Dunnebier 1951)
utat Sb
guyañ/gyañ eSb (=e//?)
ai ai y Sb (=y//?)
lolaki xm
bobai Z (=xf)

BERAWAN, LONG TERAWAN
(Proctor 1979, Blust n.d.b)
padi? Sb
tukeh eSb (=e//?)
taréh ySb (=y//?)
betaw Z (=xf?)

MALAGASY
(Richardson 1885)
rahahaly //m
rahavavy //f
anadahy xm
anabavy xf

DAIRI-PAKPAK BATAK
(Manik 1977)
kaka e//
angi y//
turaq x
WG: kula kula
WT: anak habem

MIDDLEMALAY
(Helfrich 1904)
kaka-? eSb (=e//?)
adi-ñ ySb (=y//?)
moanay xm
kelaway xf

SANGIR
(Steller & Aebersold 1959)
turaq eSb (ref.)
aka-ñ/kaka-? e// (addr.)
tauri ySb (=y//?)
mahuane B (=xm)
bawine xf

TAE'
(van der Veen 1940)
kaka-? eSb (=e//?)
adid ySb (=y//?)
anak muane xm
anak dara xf

26 WG = 'male group', WT = 'female group'. 
<table>
<thead>
<tr>
<th>Language</th>
<th>Sibling Terms</th>
<th>Culture History</th>
<th>Notes</th>
</tr>
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<td>ncawa</td>
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<tr>
<td><strong>MANGGARAI</strong></td>
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<td>ka?e</td>
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<td>weta</td>
<td>xf</td>
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<td><strong>NGADHA</strong></td>
<td>(Arndt 1961)</td>
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<td>veta</td>
<td>xf</td>
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<td><strong>SOLORESE</strong></td>
<td>(Barnes 1972)</td>
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<tr>
<td>kaka</td>
<td>eSb (=e/)</td>
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<td>ari-n</td>
<td>ySb (=y/)</td>
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<td>naa</td>
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<tr>
<td>bine</td>
<td>xf</td>
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<tr>
<td><strong>WADEWA</strong></td>
<td>(Fischer 1957)</td>
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<tr>
<td>a worked</td>
<td>//m</td>
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<td>ana mini</td>
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<td>a worked</td>
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<td>a worked</td>
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<td>ana mini</td>
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<td>ana wini</td>
<td>xf</td>
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<td><strong>ROTIE</strong></td>
<td>(Fox, pers.comm.)</td>
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<td>a worked</td>
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<td>ana mini</td>
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<tr>
<td>ana wini</td>
<td>xf</td>
<td></td>
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</tbody>
</table>
SAVU
(Wijngaarden 1896)
aʔa  eSb (=e//)
ari  ySb (=y//)
ap  B (=xm)
na weni  Z (=xf)
WG: (?)
WT: (?)

ATONI
(Schulte-Nordholt 1971)
tata-f  e//
oli-f  y//
nau-f  xm
feo-f  xf
WG: an mone
WT: an feto

TETUN
(Morris 1984)
mau-n  em
bii-n  ef
ali-n  ySb (=y//)
naa-n  xm
feto-n  Z (=xf)
WG: (?)
WT: (?)

LETI
(Jonker 1932)
ali  m//
ela  f//
nara  x
WG: (?)
WT: (?)

WETAN
(de Josselin de Jong 1987)
jali  //m
riwa  ySb (=y//?)
kaka  eSb (=e//?)
nara  x
WG: (?)
WT: (?)

FORDAT
(Drabbe 1932a)
aʔa  e//
wari  y//
WG: (?)
WT: (?)

ALUNE
(Sierevelt 1920)
beta  x
kwali  //
WG: (?)
WT: (?)

PAULOHI
(Stresemann 1918)
waʔa  eB
wari  yB
leu manawa  B
leu pipina  Z
WG: (?)
WT: (?)

SOBOYO
(Fortgens 1921)
kaka  eSb (=e//?)
uiʔi  ySb (=y//?)
naha  xm
foto  xf
EVOLUTION, MIGRATION AND EXTINCTION OF OCEANIC BIRD NAMES

ROSS CLARK

1. INTRODUCTION

In this paper I present a small beginning towards the reconstruction of the Proto Oceanic terminology for bird species. In an earlier study (Clark 1982) I had little difficulty establishing 40 or so reconstructions for Proto Polynesian and its major subgroups, mostly with fairly precise identification, which represents a substantial proportion of the bird species probably known to the Proto Polynesians. The situation for Proto Oceanic is much less satisfactory, for a number of reasons. The number of bird species in the Proto Oceanic homeland was very likely much larger than for Proto Polynesian. Naturally the difficulties of reconstruction are greater for Oceanic than for its relatively small and homogeneous Polynesian subgroup. And the available data on which reconstructions can be based leaves much to be desired. As a result there are fewer reconstructions, with less clear identifications, accounting for a smaller fraction of the Proto Oceanic avifauna.

The search for cognates further afield also proved discouraging. I checked more than 30 bird names reconstructed by various authorities for Proto Austronesian (PAN) and other protolanguages beyond Oceanic, as well as comprehensive sources of Malay bird names (Holmes 1989; MacKinnon 1990) and found only half a dozen with clear cognates in Oceanic.

It is important to bear in mind that the inventory of bird species present in the Proto Oceanic homeland in Proto Oceanic times was not necessarily the same as that found in any particular place today. The geographical range of bird populations is no more immutable than that of human populations. Certain bird species may be transported by humans to new homes. In the remoter islands of Oceania, as recent research has shown (Steadman 1989), human predation has brought about the local extinction of numerous species. In some cases linguistic evidence points to the earlier presence of birds now vanished, such as the megapode in Fiji and the swamphen in Eastern Polynesia (Clark 1982).

For the material on which this study is based, we have to thank on the one hand ornithologists who took the trouble to note vernacular names for the birds they were studying, and on the other lexicographers who were able to give either scientific identifications or at least reasonably full descriptions of the birds whose names they were recording. There is as yet no really comprehensive account of the bird terminology of any Oceanic-speaking community, based on extended fieldwork by a researcher with the competence both to identify the birds, to elicit their names, and to place them in the larger

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1. I am grateful to Bob Blust, Paul Geraghty, Debbie Hill, Andrew Pawley and Malcolm Ross for comments and additional data.


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cultural context. We may get some idea of what a full terminology would be like, however, by briefly considering two such studies of non-Austronesian-speaking communities in this region: Ralph Bulmer’s work among the Kalam of the Kaironk Valley in Papua New Guinea (see especially Majnep and Bulmer 1977), and the more recent general ethno-biology of the Tobelo speakers of northern Halmahera by Taylor (1990).

Bulmer and Taylor both record something in the neighbourhood of 100 scientific genera of birds represented in their area of study (see Table). The number of basic terms in the local language is of the same order of magnitude: 159 ‘uninomial’ terms in Kalam (Majnep and Bulmer 1977:203-207) – this figure excludes synonymous variants, but includes a few terms for bats; and 123 ‘basic (B’) terms’ in Tobelo (Taylor 1990:119, not including bats).

<table>
<thead>
<tr>
<th>TABLE: COMPARISON OF KALAM AND TOBELO BIRD TERMINOLOGIES</th>
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<tbody>
<tr>
<td>Kalam (Bulmer)</td>
</tr>
<tr>
<td>Total genera</td>
</tr>
<tr>
<td>Basic terms</td>
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<td>Monotypic genera</td>
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<tr>
<td>Polytypic genera</td>
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<tr>
<td>Subgeneric lexical distinctions</td>
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<tr>
<td>Suprageneric terms</td>
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As these writers and others have noted, there is a fairly high degree of agreement at the lower levels of classification between the folk taxonomies of people like the Kalam and Tobelo and the Linnaean classification of Western science. Nothing like Borges’s Chinese encyclopaedia appears in the categories expressed in these languages. Indeed, to the extent that the Linnaean system is, in its origins, simply a formalisation of European folk classification, this amounts to a statement about universal tendencies in human classification of the natural world based on directly observable characteristics and discontinuities. (See Berlin (1992, Chapter 2) for a full discussion of this question.)

In the present study, as we are likely to be reconstructing single lexemes, the question might be raised as to whether, at the lowest level, these typically correlate with the genus or species level of the Linnaean system. This question turns out to be more difficult to answer than one might expect. A surprising three-quarters of all the bird genera in both the Bulmer and Taylor studies are (locally) monotypic, that is, represented in the area by a single species (see Table 1). For such cases the genus-species question clearly has no answer. If we look at the remaining (polytypic) genera, however, we find that by no means all have basic terms distinguishing species (or smaller categories) within them. Nearly half the polytypic genera in Bulmer’s study, and more than half in Taylor’s, are covered by a single basic term. Balancing the subgeneric terms are a number which include more than one genus (in some cases more than one family) under a single basic term.

For present purposes, then, the genus seems like a useful level of reference for discussing Oceanic bird names, though we will encounter cases where basic terms are both more inclusive and less inclusive than this. Popular notions about science seem to include the idea that ‘species’ is the most natural unit of classification, but it should be remembered that the genus names of the Linnaean system are nouns – in many cases the ordinary Latin names for ‘kinds’ of animals or plants – whereas the species names are adjectives – supplementary information that would not be required on every occasion. (Linnaeus himself apparently at first held that monotypic genera did not need a species term.)
Proto Oceanic *manuk, judging from its various reflexes, may potentially have included all non-aquatic animals, but here I will be dealing with its more restricted sense of ‘bird’. Even in this narrower sense, however, it is frequently noted that reflexes of *manuk include bats, so names for these flying mammals are dealt with at the end of the present paper.

In the Linnaeian system, between birds (Class Aves) and the various genera there are intermediate levels of ‘Order’ and ‘Family’. Taxa of this rank are generally less common in folk taxonomies, and there are only one or two hints here of terms which may have had such a role in Proto Oceanic. The Linnaeian families, however, provide a useful way of arranging the discussion in this paper.

Of about 150 families of birds distinguished by ornithologists, only about half occur in the Oceanic-speaking area. Half of these are restricted either to New Zealand (ruling them out as Proto Oceanic birds) or to the New Guinea area, for which my data is too limited to venture reconstructions here. Several more families are eliminated because terms for them simply do not turn up often enough in the sources. This leaves about 25 families for which one or more regional or Proto Oceanic terms may be reconstructed. I have further divided these into three large groups: sea birds, passerines and the rest. The first two are, for different reasons, more difficult to reconstruct than the third.

Sea birds are a relatively constant presence, with many cosmopolitan species present throughout the Oceanic region. By contrast, land bird species numbers decline steadily as one moves away from Asia and into the remote Pacific; thus sea birds correspondingly make up an increasingly significant proportion of the total species known in Micronesia and Polynesia than they do in, say, New Guinea. Moreover, in the former regions no-one lives far from the sea; sea birds are regularly observed, and even scrutinised, in the course of fishing and inter-island navigation. As a result, a typical Micronesian or Polynesian dictionary may have several different words for species of terns, while a comparable dictionary of a New Guinea Oceanic language may have none, or perhaps an entry with a gloss like ‘bird sp. similar to a seagull’.

The passerines, ‘sparrow-like’ or perching birds, while they commonly account for around half the species of land birds in a given area, are by and large smaller than the non-passerines, and of little or no economic or other practical importance. Judging from the Kalam and Tobelo cases, they were probably known and named as fully in Proto Oceanic as other types of birds, but in the context of modern linguistic fieldwork they are more likely to be overlooked or poorly identified. Geographical distribution of species also tends to be more fragmentary, adding to the difficulties of comparison.

Thus it is among the non-passerine land birds, where a combination of size, accessibility and clear morphological distinctiveness makes it hard to confuse ‘kinds’, that the history of Oceanic bird terminology can most readily be reconstructed.

2. RECONSTRUCTIONS

Putative cognates are arranged by regions, in the following order: Central Pacific (CP); Micronesia (MC); New Caledonia (NC); South Vanuatu (SV); North Vanuatu (NV); South-East Solomons (SS); North-West Solomons (NS); Papuan Tip (PT); Western Melanesia (WM). Reconstructed protolanguages for the CP, NV, SS and PT groups are designated by prefixing ‘P’. (I also cite a few reconstructions for Proto Polynesian (PPN), Proto Nuclear Polynesian (PNP) and Proto Malaitan (PML).) Where apparent cognates appear in two or
more regions, I have proposed a Proto Oceanic (POC) reconstruction, though in some cases only a sub-POC level may be justified. I have included some established reconstructions from other writers; these are identified by name, and only representative evidence is cited.

My main sources of information on Oceanic birds themselves have been Pratt et al. (1987) for Polynesia and Micronesia, Rand and Gilliard (1967) for New Guinea, Mayr (1945) for the rest of Melanesia, and Falla et al. (1978) for New Zealand. Since there is no single handbook covering the entire region, to maintain a consistent and reasonably up-to-date scientific taxonomy, I have used the terminology of Howard and Moore’s (1980) world checklist throughout. A great deal of correcting and normalising of nomenclature has been required, so that scientific names given as glosses are not necessarily to be found in the original sources. Forms without glosses can be taken either as applying to the entire family in question, or as not clearly assignable, on the evidence available, to any particular genus or species within the family.

2.1 SEA BIRDS

2.1.1 PETRELS AND SHEARWATERS (Procellariidae)

These birds spend all the daylight hours far out at sea. Even at close quarters, the various species are hard to distinguish. They nest in burrows, and may be known only as 'birds that are heard at night'. Only in areas where some species ('mutton birds') are eaten would one expect people to have a close-up familiarity with them. Only regional forms have been found, none with any certainty of species or even genus identification:

NC: Kumak ikeep, Hienghene ninep, etc. (cf. Gilbertese tinebu 'Puffinus nativitatis (Christmas Island Shearwater)')
CP: PCP *liko (Geraghty 1984), PPN *taiko, *lofa

2.1.2 TROPIC BIRDS (Phaethontidae)

The two extremely long tail feathers make these birds impossible to confuse with any other kind, but they appear to be little known in western Oceania. There are two species of the genus Phaethon, which differ principally in that one (rubricauda) has red tail feathers and the other (lepturus) white; they are not normally lexically distinguished. Only one regional reconstruction is established:

PPN *tawake (cf. Fijian tawake 'banner')
MC: Trukese wuuk and Woleaian siug may possibly be cognate.

2.1.3 GANNETS AND BOOBIES (Sulidae)

Three species of boobies (genus Sula), although quite similar in appearance, appear to be distinguished at the species level by many Polynesian and Micronesian languages. For comparative purposes, however, it is difficult to correlate the different cognate sets with particular species.

PNP *takupu, *(maua)kena

A reconstructed Proto Eastern Oceanic *kanapu 'gannet' is proposed by Biggs (1965:401) on the basis of cognates in Maori and Rotuman. (Gannets are members of the same family
found in temperate latitudes.) In fact the Maori form is an error; the word is reflected only in Samoic-Outlier languages and in Rotuman. This would warrant reconstruction to the PCP level, though the form of the Rotuman cognate is consistent with it being a Polynesian borrowing.

2.1.4 FRIGATE BIRDS (Fregatidae)

These birds are always noticed, whether from their high flight, their distinctive shape, the inflatable red gular pouch of breeding males, or their habit of attacking other sea birds and stealing their food. The two species (Fregata ariel and Fregata minor) do not seem to be lexically distinguished. There are two widespread cognate sets which appear to be geographically complementary:

(1) POC *ndaula ‘frigate bird (Fregata)’ (Milke 1968)
   SS: Nggela daula, Kwaio gaula
   PT: Nada dauka
   WM: Tolai daula, Bariai raiia, Mussau raura

(2) POC *katapa ‘frigate bird (Fregata)’
   CP: PPN *katafa, Rotuman ‘afaha (cf. Fijian kasaqa)
   MC: Trukese asaf, Ponapean kasap
   NC: Iaai atad, Nengone wa-xej, Dehu wete, Kumak caave
   WM: Loniu katah and other Admiralty forms reflecting *katapV (R. Blust, pers.comm.)

Set (2) shows an interesting connection to the word for the Bird’s-nest Fern (Asplenium), reconstructable as PMP *katap81J (Tryon, this volume). Compare Proto Central Eastern Polynesian *kiwa, a different form covering the same two meanings.

2.1.5 PLOVERS AND SANDPIPERS (Charadriidae, Scolopacidae)

More than 50 species of these wading birds are recorded as visiting the shores of the Oceanic region. They are famous for their long-distance migrations, and are mainly seasonal visitors rather than permanent residents. Identification can be difficult even for experts (Mayr 1945:28). Nevertheless, a number of the most common species can be distinguished fairly readily by differences in size, bill shape and voice, and terms for them are fairly consistent, at least within Polynesia. These include the Golden Plover (Pluvialis dominica), the Bristle-thighed Curlew (Numenius tahitiensis) and the Wandering Tattler (Heteroscelus incanus). The most widely distributed term, however, is not identified with any precision:

(3) POC *nsipiu ‘shore bird’
   NC: Paici dipiu, Pije difiin
   PNV *siviu
   PSS *siviu

There are a few other suggestive inter-regional agreements:

CP: PPN *kolili ‘Heteroscelus’
MC: Namoluk ilil ‘Heteroscelus’, Kusaiean kulul

CP: PPN *kiiu (or *kui), PNP *kiwi ‘Numenius’ (cf. MC: Marshallese kewak ‘Numenius’)
PPT *kiwiwi ‘sandpiper’ (cf. also Tabar (New Ireland) kuvivi)
CP: PPN *tu[i], Standard Fijian dilio, Wayan doli, Rotuman jul ‘Pluvialis’

All of these terms, with their preponderance of high vowels, glides and liquids, are suggestive of onomatopoeic naming. While this raises the possibility of spurious cognates through convergent development, it may have the compensating advantage of providing an additional clue to the identification of the bird named (Clark 1991b).

2.1.6 GULLS AND Terns (Laridae)

Many Oceanic dictionaries and vocabularies list terms for ‘seagull’, but gulls are not common in tropical Oceania, and most of these words probably refer to terns. A number of rather similar species in the genus *Sterna* are commonly labelled by a single lexeme; this seems the most likely identification for POC *kanawe:

(4) POC *kanawe ‘tern (*Sterna*)’ (Milke 1968)
  SS: Nggela ganae, Kwaio ‘anakwe
  NS: Taiof kanai
  PT: Tawala kanawe, Motu kanage
  WM: Yabem kanā, Gedaged kanai, Tolai kanai

Other regional forms are: PPN *tala ‘Sterna’; PPT *ker(eC)a ‘seagull’ (cf. MC: Trukese araar, Marshallese kear, NS: Halia kira, Roviana dekere).

Two related genera are generally noticed only in the remote regions: the smaller and darker noddies (genus *Anous*) and the beautiful White Tern (*Gygis alba*):

PCP *ñoño ‘Anous’
PPN *akiaki ‘Gygis’ (cf. Trukese ekiyek ‘Gygis’)

2.2 PERCHING BIRDS (Order Passeriformes)

2.2.1 FLYCATCHERS (Muscicapidae)

The only trans-regional cognate set appears to centre around the most conspicuous and distinctive of these birds, the fantails (genus *Rhipidura*):

(5) POC *takere ‘fantail (*Rhipidura*)’
  CP: Rotuman fā‘ere ‘Clytorhynchus (Fiji shrikebill)’
  NC: Kumak daginy ‘Rhipidura’, Grand Couli dari
  PNV *takere(kere) ‘Rhipidura’
  PT: Hula tikere ‘Rhipidura’, Balawaia sikerekoio ‘a small grass bird with a long tail’
  WM: Tolai tagene ‘Nectarinia (sunbird)’

2.2.2 HONEYEATERS (Meliphagidae)

These are fairly common birds, distinguished by their habit of feeding on nectar with their brush-tipped tongues. Those of the genus *Myzomela* are widespread as far as Western Polynesia. Neither cognate set below is particularly satisfactory.
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(6) POC *m(iu)nti 'honeyeater'
CP: Fijian (Lau dialects) miti kula, mitimiti 'Myzomela'
PSS *mudi(mudi) 'Myzomela'

That a honeyeater was the original referent of this form is suggested by the comparison with Proto Eastern Oceanic *mi ji 'suck, lick' (Geraghty 1984). However, both the Polynesian reflexes (PPN *mitI) and the basic form (mitI) in Eastern Fiji refer to the starling Aplonis. The reason for this shift of meaning is not clear.

Tongan and Fijian names for the Wattled Honeyeater (Fulehaio) are clearly cognate, and although this genus is not found west of Fiji, there are some possible cognate names for other birds of the same family:

PCP *vusil(eo)u (Geraghty 1984) 'Foulehaio' (Tongan fuleheu, Fijian visilou)
NC: Iaai bahelo ‘Philemon (friarbird)’
NV: Raga busubihil 'Myzomela', South-East Ambrym vasil 'Myzomela'

2.2.3 STARLINGS (Sturnidae)

The starlings of genus Aplonis are the only members of this family which reached Oceania in pre-European times. In the following set, though the meaning is quite well defined, formal correspondences are problematic:

(7) POC *pusi(Ca) 'starling (Aplonis)'
CP: PPN *fui(w)a, Fijian vocea, Rotuman husila 'Aplonis'
MC: Ponape sie ‘Aplonis’
NV: Mota wotepispis 'merula [blackbird]'
PSS *bisu 'Aplonis' (cf. Rennellese ghaapilu ‘Aplonis’)
WM: Tolai vuira ‘Aplonis’

The only other regional reconstruction worth noting in the passerine group is PCP *jea(jea) 'triller (Lalage)', based on Standard Fijian sea(sea), Wayan seesee, Rotuman jea, and Niuean heahea.

2.3 NON-PASSERINE LAND BIRDS

2.3.1 CASSOWARIES (Casuariidae)

One or more species of Casuarius was almost certainly known to the POC speakers. Though restricted to the New Guinea area, there is a well-established POC reconstruction for this bird:

(8) POC *kasuari 'cassowary (Casuarius)' (Milke 1968)
PT: Doga kouari, Suau ngasuali
WM: Lihir kosol, Tami kisua, Kela kusua

2.3.2 HERONS AND BITTERNS (Ardeidae)

The most widespread and common species is the Eastern Reef Heron (Egretta sacra). Some complications arise from the fact that the bird has two colour phases, which may be lexically distinguished (e.g. Mele-Fila oova ‘blue-grey heron’, matukutea ‘white heron”).
There are also various smaller and less conspicuous members of the family such as the bitterns (Ixobrychus) and the Green Heron (Butorides).

(9) POC *kaowa ‘heron’
    CP: PNP *kao ‘Butorides’, Fijian visakoo, vusukewa ‘Butorides’
    MC: Trukese kawakaw ‘heron’, Ponapean kowelik ‘heron-like bird’ (cf. Nukuoro
gava ‘Egretta’)
    NC: Kumak kôva ‘black heron’, Paići kôö ‘Egretta’, Houailou gōxō ‘common heron
(long-cou)’, Canala kaaukwa ‘white heron’
    PNV *ova ‘Egretta’
    PSS *kaova (cf. Rennellese ghou ‘Ixobrychus’)
    NS: Halia koei ‘crane’

This term seems to apply most often to Egretta. In CP, however, Egretta is Fijian beloo,
PPN *matuku, which do not appear to have cognates elsewhere; and reflexes of *kaowa
apply to Butorides. Perhaps *kaowa was originally a generic term, displaced by innovative
CP forms for Egretta, but surviving as the name for the less common species.

Other regional forms are: PSS *sou, PPT *boqe.

2.3.3 DUCKS (Anatidae)

Although many Northern Hemisphere ducks are seen sporadically in Hawaii and
Micronesia, the only truly widespread and common member of this family in Oceania is the
Spotbill Duck (Anas poecilorhyncha):

(10) POC *gaaRa ‘duck’
    CP: Fijian gaa
    SS: Arosi ngara i su?u
    NS: Roviana ɲara

Blust (pers.comm.) notes Manggarai (Central Malayo-Polynesian) ngara ‘wild duck’ as
external support for this reconstruction. The following forms suggest the existence of a
metathetic doublet *râja:

    MC: Namoluk rang, Marshallese rongbet
    NC: Iaai eng, Hienghene niang
    SV: Kwamera iareng
    PSS *karaŋa

2.3.4 BIRDS OF PREY (Accipitridae, Pandionidae, Falconidae)

Up to half-a-dozen species of hawks, eagles, ospreys and falcons are commonly found in
western Melanesia, but they thin down to a single species further out and disappear
altogether in remoter Micronesia and Polynesia. Where more than one species exists they are
separately lexicalised. Two terms seem reconstructable at POC level, one for the Crested
Baza (Aviceda subcristata) and another for the osprey (Pandion) or one of the fish-eating
eagles:

(11) POC *kito ‘baza (Aviceda)’
    PSS *kìtsò ‘Aviceda’
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NS: Roviana pito ‘Aviceda’, Halia kitou ‘large bird’
PT: Iduna kito ‘Aviceda’

(12) POC *tarapkau ‘fish-eating eagle or osprey’
PSS *taraqau
WM: Tolai taraqau ‘Pandion’, Manam taragau ‘fish-eagle’

Other regional forms are: PNV *mala (cf. NC: Houailou boamara, etc.); PSS *tava.

2.3.5 MEGAPODES (Megapodiidae)

These birds, known also as incubator birds, or less helpfully as ‘scrub-fowl’, ‘bush-hen’, etc., have the unique habit of hatching their eggs by burying them in naturally warm material rather than sitting on them. These large eggs are an appreciated food in many Oceanic communities, and it is possible that human beings were responsible for transporting them to some of the remoter islands. F.W. Christian (1926) first called attention to the first set of cognate names for this bird. This almost certainly refers to the genus Megapodius, which is common as far east as Tonga. A larger type of megapode, the ‘brush turkey’ of genus Talegalla, was probably present in the Oceanic homeland, and might speculatively be associated with the second cognate set.

(13) POC *malau ‘megapode’
CP: PPN *malau ‘Megapodius’
PNV *malau ‘Megapodius’
WM: Gedaged malau

Christian (1926) cites cognates from Micronesia and New Britain which I have been unable to confirm. There are also a number of undoubtedly related forms from eastern Indonesia such as Sangirese maleo ‘Megapodius’ (R. Blust, pers.comm.).

(14) POC *ki(C)au
SS: Malango kihau ‘Megapodius’, Lau geo, Longgu geu
NS: Halia kihau ‘ground bushfowl’, Roviana eo ‘brush hen’, Maringe kho’io ‘Megapodius’
WM: Tolai kiau, Amara okoiou, Mussau kikiau

2.3.6 FOWLS (Phasianidae)

The red jungle fowl (Gallus gallus) has reached almost every part of Oceania as a result of human settlement. Domestic and feral fowls are not in general lexically distinguished. There is no clearly established POC term. One set of cognates is represented by PNV *toqa, Fijian toa (cf. PPN *toqa ‘courageous, warrior’); another by NS, PT and WM forms such as Roviana kokorako, Bwaidoga kakaleko, Tolai kakarak.

2.3.7 RAILS (Rallidae)

The largest and most conspicuous species of rail in Oceania is the Purple Swamphen (Porphyrio porphyrio), notable as a garden pest. It is curious that in the only trans-regional cognate set there seems to be a connection with the Banded Rail (Rallus philippensis), a
much smaller and shyer bird with which the swamphen could not possibly be confused. The only other rail with a widespread name is the Sooty Crake (*Porzana tabuensis*).

(15) POC *gpilake* 'rail'
    PNV *bwilake* 'Rallus'
    PSS *bwila(k)rē* 'Porphyrio'

Other regional forms are: PCP *qalae* 'Porphyrio'; PCP *weka* 'Rallus'; Fijian *moo*, PPN *moso* 'Porzana'.

2.3.8 PIGEONS AND DOVES (Columbidae)

Even the remoter island groups commonly have several lexically distinguished species in this family. The most widespread types are the large pigeons of genus *Ducula*; fruit doves (*Ptilinopus*); and various ground doves.

(16) POC *baluc* 'pigeon (*Ducula)*' (Ross 1988) (PAN *baluj)
    NS: Nehan *baluh*, Roviana baruku 'fruit pigeon'
    WM: Tami *mbalut*, Tigak *valus*, Mussau *balus(u)*

In other regions there are also terms reminiscent of the above, though not regular reflexes:

PCP *ru(bv)e* (PPN *lupe, Fijian ruve*) 'Ducula'; PSS *bola* 'Ducula (or generic)'; NS: Zabana, Maringe *bora* 'Ptilinopus'.

(17) POC *bune* 'fruit dove (*Ptilinopus)*' (Grace 1969) (PAN *punay)
    CP: Fijian *bune*
    NC: Iaai *biny*
    SV: Kwamera pin-harov, pin-uas
    NV: Mota qasa-pule, Port Sandwich na-vimbūn
    PT: Tawala *bunebune*, Motu *pune*
    WM: Tolai *buna*, Manam *bune*

(18) POC *(lV)muko* 'dove'
    PSS *lumuko* 'ground dove (*Gallicolumba* or *Chalcophaps)*

Although attested in only one region of Oceania, this reflects PMP *-muken* 'omen dove' (Blust 1983, 1987b), with the 'uncanny' prefix *qali-*, though Blust does not list any Oceanic reflexes.

Other regional forms are: CP: Fijian *soqe* 'Ducula, Columba' (cf. NV: South Makekula *song 'Ducula'); PNV *kuiba* 'Ducula', *mwara, *taroa.

2.3.9 PARROTS (Psittacidae, Loriidae, Cacatuidae)

As with pigeons, there are commonly several lexically distinct species in any region. Diversity ranges from about 20 genera in the New Guinea area to only one or two in the remoter islands. The discussion here is roughly in descending order of size.

The Sulphur-crested Cockatoo (*Cacatua galerita*) is distinguished from all other members of this family by its size and colour. There are no clear trans-regional cognates, but note PPT *wakeke* 'white cockatoo (*Cacatua galerita)*.'
The Eclectus Parrot (*Eclectus roratus*) seems the most likely POC referent for the following cognate set. The sexes are strikingly different in colour, and the male (predominantly green) and female (predominantly red) are sometimes separately lexicalised, but no widespread agreement in such sex-distinguishing terms was noted.

(19) POC *kaRa* ‘parrot (*Eclectus)*
- CP: Fijian kakaa ‘Prosopoeia’, PPN *ka(a)kaa
- SS: Nggela kalao ‘a green parrot’, Kwaio a’ala ‘Eclectus Parrot (male)’, Bauro ghara ‘Eclectus Parrot’
- NS: Maringe, Simbo makara ‘Eclectus Parrot’, Roviana kara ‘parrot (generic)’, Halia kalakala ‘green parrot’

The identification of this cognate set with *Eclectus* seems fairly clear in the Solomons, but as the species does not occur further out in the Pacific, the CP cognates are entered with some reservation. (It is at least possible that some are imitative of parrot screeches.) In Fiji, the name kakaa is applied to the largest local members of this family, the Shining Parrots (*Prosopoeia*), a genus endemic to Fiji. Present populations of these birds in Tonga are believed to be of recent introduction, but Steadman (1989:193-195) reports possible fossil evidence of much earlier presence there. In Eastern Polynesia, at least two species of parakeet (*Cyanoramphus*) were present in the Society Islands in the late eighteenth century; though both are now extinct, names recorded in early vocabularies suggest ‘a’a as the Tahitian name for them. By the time the name reaches New Zealand, it has evidently assumed family-level generality, as it is applied to the very large kaakaa (*Nestor meridionalis*), the huge and flightless kaakaa-poo (‘night parrot’) (*Strigops*) and the much smaller kaakaa-riki (‘little parrots’) (*Cyanoramphus*).

A different set of cognates appears to be geographically complementary to the preceding, and probably refers to the same species:

PPT *kalagar* ‘parrot’ (Roro ?aea and Mekeo a?a are specifically identified as the green (i.e. male) Eclectus Parrot)

The following cognate set is most readily associated with the Rainbow Lory (*Trichoglossus haematodus*), widespread throughout Melanesia (a related species occurs on Ponape). However, a number of apparent cognates refer to other middle-size parrots (*Eos* and *Lorius*).

(20) POC *si(pw)iri* ‘lory (*Trichoglossus*)’
- CP: PNP *siwili
- MC: Ponapean serehd ‘Trichoglossus’
- NC: Fwái diwali ‘Cyanoramphus’
- NV: Mota sivure, Raga sivi, South-West Bay nesivir, Efate siviri ‘Trichoglossus’
- SS: Kwaio suli ‘Trichoglossus’; Malango tsitsiri, Ugi siri ‘Eos’; Bauro sivi, Arosi (diwi)siri ‘Lorius’, Sa’a siri ‘lory spp.’, Nggela siri ‘a small red parrot’, Bughotu siviri ‘red parrot’
- NS: Roviana siri ‘red parakeet’ and sivoro ‘a parrot like the Rosella’, Simbo siri ‘a red bird that eats coconut’, Halia li ‘small red parrot’, Maringe sivoro ‘green and red parrot’, sigre ‘small colourful parrot’
PT: Balawaia rivili ‘small green parrot’, Lala sivili ‘small parrot’, Roro timiri ‘small parrot’, Mekeo tsipili ‘noisy parrot’

WM: Loniu ciri and other Admiralty forms reflecting POC *nsipi[V (R. Blust, pers.comm.)

The PNP reconstruction must be considered very tentative, in view of the fact that none of these parrots is presently found in Polynesia. Aside from Samoan vilu ‘a large parrot’ (Pratt et al. 1987), which may just possibly have referred to Prosopeia, it is based on Eastern Polynesian forms vini for the eponymous genus of small lories (Vini) and a number of Outlier forms which may possibly be borrowed from Melanesian languages.

The smallest parrots of widespread distribution in Oceania are the lorikeets of genus Charmosyna (and the closely related Vini in Polynesia and eastern Fiji):

(21) POC *Cega ‘small parrot (Charmosyna)’
   CP: PPN *sea, Fijian sea ‘Vini’
   NV: Mota rengas, South-East Ambrym reng ‘Charmosyna’
   WM: Manam seng ‘parrot’

A number of residual groups centring around the canonical form *ki(lr)V show suggestive resemblances without permitting any clear reconstruction(s) at the POC level:
   (a) SS: Sa’a iloilo’a ‘female Eclectus Parrot’, Malango kira ‘Eclectus Parrot’, Nggela kilo ‘red parrot’, Longgu kiloi ‘red parrot (female)’
   NS: Tinputz (ki)kire ‘Eclectus Parrot’, Banoni kire ‘(red) Eclectus Parrot’, Babatana kira ‘lorikeet’
   (b) SS: Lau kiori, ‘Are’are kiori, Sa’a kiori ‘Eos’, Arosi kiori ‘Eos’
   (c) SS: ‘Are’are riko(riko), Kwaio liko(liko) ‘Eos’
   (d) SS: Lau kila(kila) ‘green parrot’, Sa’a kile(kile) ‘small green parrot’, Arosi kira(kira) ‘small green parrot’
   (e) NS: Zabana kikila ‘Eos’, Maringe naklio ‘red and green parrot, possibly female Eclectus’, Simbo kilo
   (f) PT: Hula kiloki ‘lovebird’, Balawaia kiloki ‘dark green bird’
   (g) PCP *kula ‘collared lory (Phygis)’

2.3.10 CUCKOOS (Cuculidae)

Only one migratory species has even a regionally reconstructable name, the Long-tailed Koel (Urodynamis taitensis):

PPN *kaalewa(lewa) ‘Urodynamis’

2.3.11 OWLS (Tytonidae, Strigidae)

The only widespread species in Oceania is the Barn Owl (Tyto alba). The following set may suggest imitation of owl hoots; the voice of the Barn Owl, however, is not a hoot, but a screech. Thus it is possible that at the POC level this name (or names) referred to some other type of (hoot) owl of the New Guinea-Solomon Islands region. The available data does not allow even a guess at such an identification.
EVOLUTION, MIGRATION AND EXTINCTION OF OCEANIC BIRD NAMES

2.3.12 SWIFTLETS (Apodidae)

These are small birds which catch insects on the wing. Although Linnaean classification places swallows (Hirundidae) in a distinct family (in fact a different order) from swiftlets, folk taxonomies often use a single term for both, for example, Kalam sskl (Majnep & Bulmer 1977:109). The swiftlets (Collocalia) are most widely recorded, but the Pacific Swallow (Hirundo tahitica) is found in many parts of Oceania, and would probably have been covered by term (23):

(23) POC *kampakampal 'swiftlet (Collocalia)'
    CP: Standard Fijian kaakaba ‘Collocalia’, Wayan kalaba ‘Collocalia’
    PNV *kabakaba
    SS: Arosi ‘apa’apa
    NS: Maringe ągągbale ‘Collocalia’
    PT: Iduna manu yabayama ‘Collocalia’
    WM: Tolai kabakabal ‘Collocalia’, Mussau kiriababa ‘insectivorous cave bat’

A connection with POC *kapa ‘flap wings, flutter’ seems likely.

2.3.13 KINGFISHERS (Alcedinidae)

Although half a dozen genera were probably present in the homeland, only the collared kingfishers of genus Halcyon are found beyond New Guinea and the Solomon Islands. The following three cognate sets have a distinct family resemblance and suggest imitation:

(24) POC *(ts)iko ‘kingfisher’
    CP: PPN *tikotara (cf. Fijian sikorere ‘wood swallow (Artamus)’ and seeala ‘Halcyon’)
    MC: Sonsorol-Tobi tagadik
    PNV *siko
    SS: Arosi sigo, Rennellese ligho
    NS: Roviana siqe

(25) POC *kiokio ‘kingfisher’
    SS: Longgu kiokio, Nggela giogio, PML *ki’o, Arosi kiokio
    NS: Roviana kikio, Zabana kiokio, Halia kiukiuki
    WM: Nauna kikiw, Seimat kiki, Wuvulu ioio (R. Blust, pers.comm.)

(26) POC *kiki ‘kingfisher’
    NC: Iaai wajji, Dehu ciciat, Nengone wa-zeze
    SS: PML *ii
    WM: Tolai kiki, Bali-Vitu kiki, Nakanai kiki, Mussau sokiki
2.3.14 HORNBILLS (Bucerotidae)

Blyth's Hornbill (*Aceros plicatus*) is the only member of this family found in Oceania (New Guinea and the Solomon Islands).

(27) POC *binam ‘hornbill (*Aceros*)’
   PSS *bina
   PT: Dobu *binama*, Ubir *binam*, Motu *bina*, Iduna *binama*

2.3.15 BATS (Chiroptera)

Bats are mammals (Order Chiroptera), but as substantial flying creatures they are often grouped with birds. Perhaps 20 genera of bats would have been present in the POC homeland region (Ziegler 1972:13-16). The major division is between the fruit-eating bats (Family Pteropidae), the largest of which belong to the genus *Pteropus* and are commonly known as ‘flying foxes’; and the various smaller insectivorous bats grouped into the Suborder Microchiroptera.

Two POC terms for ‘flying fox’ have been reconstructed:

(28) POC *mpel)ka ‘flying fox’ (Milke 1968)
   CP: Fijian beka, PPN *peka
   MC: Mokilese pwehk
   NC: Nenema bwak
   NV: Vowa mbeke
   WM: Vitu bega, Siassi mbiaŋ, Pala bēka

(29) POC *maliboj) ‘flying fox’ (Ross 1988)
   PT: Iduna manubogi
   WM: Manam malabong

Other regional forms are: PNV *qarai and *manukona ‘flying fox’. The latter can be analysed as ‘taboo bird’; one might speculate that (28) also represents an original compound **manu-boj) ‘night bird’.

No POC reconstruction can be given for the Microchiroptera, but two widespread patterns of naming them exist. On the one hand they may be treated as ‘small flying foxes’ and accordingly named with a reduplicated form of the term for the larger bats, as PPN *peka ‘fruit bat’, *pekapeka ‘small bat’; or Iaai bā ‘flying fox’, obūābū ‘small bat’. Alternatively, they may be grouped with the swallows and swifts (see item (23)), which they resemble in size, colour and above all in their restless hawking flight. Examples are South-East Ambrym avaep ‘any small bat, swiftlet’ and PPN *pekapeka ‘small bat’, which also includes swallows and swiftlets.
PROTO WHO DRANK KAVA?

TERRY CROWLEY

In attempting the reconstruction of the distant past, linguists, archaeologists, physical anthropologists, biologists and oral historians all have their parts to play. Although the papers presented at this symposium have all attempted to reconstruct the Austronesian past primarily through a consideration of the linguistic facts, the conclusions that we reach often have important implications for the other disciplines as well.1

One thing that becomes apparent from a number of the papers presented at the Austronesian Terminologies conference is that many archaeologists are sceptical of the contribution that linguists have made in the past in their reconstruction of Austronesian culture history. While conceding that linguists have developed a fairly reliable technique for reconstructing past forms, archaeologists tend to be much more sceptical of the reconstruction of the meanings of some of these forms.

Sometimes, there is good justification for this kind of scepticism. On the basis of the meanings of reflexes of Proto Polynesian *tusi, it would be logically possible to reconstruct one of the meanings of the original form as ‘book’. No linguist (as far as I know) has ever reached this conclusion, and Walsh and Biggs (1966:122) quite rightly accept that the meaning of ‘book’ for reflexes of *tusi in modern Polynesian languages represents a late eighteenth and early nineteenth century parallel semantic shift from original ‘point, indicate, delineate’, via the introduced meaning of ‘write’.

There are other instances, however, where linguists have, or may have, erred in their reconstructions. Walsh and Biggs (1966:40) also reconstruct *kumala ‘sweet potato’ as a Proto Polynesian word, yet it has now been fairly well established on the basis of non-linguistic evidence that the sweet potato was a relatively late introduction into Polynesia from South America. Others have reconstructed Proto Austronesians as literate metallurgists, arousing the scepticism of archaeologists.

In this paper, I relate the linguistic and the non-linguistic reconstructions of history with regard to the consumption of kava, the mildly narcotic juice of the roots and stem of the plant known botanically as Piper methysticum. This juice is, or in some cases was until recently, widely drunk around the islands of Vanuatu, as well as in Fiji, Rotuma and much of Polynesia, the Micronesian islands of Ponape and Kosrae, and one or two isolated pockets in Papua New Guinea. Areas in Polynesia where kava was not drunk include the remote and climatically unsuitable islands of New Zealand and Easter Island, though in some areas, such

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1 Thanks to Kirk Huffman, Paul Geraghty, Monty Lindstrom, John Lynch and Vincent Lebot for helpful comments on an earlier draft of this paper. Responsibility for final conclusions, of course, rests with myself.

as Tahiti, kava was much less commonly found than in other parts of Polynesia. There are also some areas of Vanuatu where kava was traditionally not drunk at all, or was very restricted in terms of who could drink it or when, for example, Ambrym and southern Malakula (Huffman, pers.comm.). Kava-drinking is not reported from the Solomon Islands, except for the evidence of the entry *kukumanu* in Arosi, which Fox (1970:216) glossed as follows:

*a coconut drinking cup, for solemn occasions; usually decorated with carvings of birds; formerly used at ceremonial kava drinking at death ceremonies.*

Maps 1 and 2 show the distribution of kava-drinking areas in the Pacific at the time of initial European contact.

![Map 1: Distribution of Kava-Drinking Areas in the Pacific](image-url)
The customs surrounding the consumption of the drink in the Pacific vary from area to area. In Vanuatu, kava is by tradition a drink for men only, sometimes being drunk recreationally and sometimes ceremonially. When drunk recreationally, it is generally consumed in the late afternoon or early evening, with a minimum of ambient noise, so that the drinker can ‘listen’ to the effect of the kava. The strength of traditional restrictions against women drinking kava in Vanuatu varied from island to island, and in some cases, women could be put to death for even catching sight of men drinking kava. In Polynesia, however, the drinking of kava is much more a matter of ritual, with important occasions being marked by kava ceremonies of extreme formality and elaboration, with rigid hierarchies determining who can drink kava, and when.

Kava can be prepared in a variety of different ways in different areas. In some places in Vanuatu, the fresh roots are ground on a wooden plate, in others in the hand with a piece of coral rock, and in others they are chewed and the liquid squeezed out. Today in Vanuatu, and in other parts of the Pacific, the roots are also commonly pounded in a metal pipe (or even ground in a meat grinder). In some parts of the Pacific, most notably Fiji, kava is sold in

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2 Which, the reader is assured, can be positively delightful, despite the fairly appalling taste. Geraghty (pers.comm.) disagrees on the latter point, though I have to point out – pace Geraghty – that ni-Vanuatu generally regard anybody who actually likes the taste of kava as being somewhat odd.
powdered form, a practice disdained in Vanuatu for the distinctly unimpressive results that this produces.\(^3\)

Because it was condemned by missionaries in many islands in the nineteenth and early twentieth centuries in Vanuatu, people in some parts of the country stopped drinking kava altogether, while in other areas people restricted their use of the drug to very special occasions. On the other hand, however, there are islands where kava-drinking continued unabated. In Polynesia and Fiji, where kava has always had a much stronger ceremonial role, kava-drinking has been largely maintained.

In the years since Vanuatu gained its independence in 1980, there has been a massive resurgence of kava-drinking (and a corresponding massive reduction in the amount of alcohol that is consumed). This resurgence has been partly a response to increases in the price of beer, and partly an expression of the desire to maintain Melanesian values over European values. A whole 'neo-tradition' of kava-drinking is establishing itself in the urban centres of Vila and Santo today, with new rules of usage, and even a whole new vocabulary in Bislama to talk about it (Crowley 1989:111-113). There are reported to be about 140 nakamals, or kava-bars, operating commercially in Vila today, a town of only about 18,000 people, that is, one nakamal for approximately every 130 people!

A number of sources have, on linguistic grounds, reconstructed terminology associated with kava-drinking as far back as Proto Oceanic. Grace (1969) and Blust (1972c) reconstruct the following kava terms at this level:

\[
\begin{align*}
*kava & \quad \text{kava} \\
*ka(n)ta & \quad \text{kava branch} \\
*kosa & \quad \text{kava remains} \\
*tunas & \quad \text{kava root shoot}
\end{align*}
\]

The reconstruction of *kava in Proto Oceanic was presumably based on the fact that *kawa presents an uncontroversial reconstruction for Proto Polynesian (Walsh & Biggs 1966:30), and that apparently cognate forms occur in the Manus languages of Papua New Guinea, that is, kau in Baluan and ka in Lou, keu and kau in some of the coastal Madang languages, and that the forms sakau in Ponapean and suhka in Kosraean are possibly cognate as well.

We can be reasonably certain on non-linguistic grounds that kava has been around in Vanuatu for some considerable time, and that it long predates European contact. Garanger (1972) reports the oral tradition from the Efate and Shepherds area of Central Vanuatu which said that when the leader Roi Mata died, a number of couples were buried alive with him. Most versions of the story report that the men were stupified by strong doses of kava before they were killed, while other versions indicate that they were hit on the head to knock them unconscious. The wives of these men who were sacrificed beside them were said to have been buried fully conscious. Photographs of the grave site excavated on Eretoka, or Hat Island, movingly show the men to have died peacefully, while the women clearly suffered agonies (Garanger 1972, Figures 154-175). The men's skulls were intact, which is more

\(^3\) The Vanuatu Commodities Marketing Board is currently experimenting with the manufacture of a new product by which the active ingredient is extracted in soluble form so that a teaspoonful in a glass of water is all that is needed. This neskava is not yet available commercially.
consistent with those versions of the story which reported that the men had been anaesthetised with kava. Radiocarbon dating places these burials at around AD 1265.4

The question that we should examine now is: To what extent is the non-linguistic evidence consistent with kava having had Proto Oceanic antiquity? And if kava-drinking should prove not to go back as far as Proto Oceanic, then how can we account for the linguistic facts which point to the reconstruction of *kava as a Proto Oceanic term?

The geographical and biological origins of kava have yet to be definitively resolved, though it certainly goes back considerably further than the seven hundred years suggested (but by no means proven) by the archaeological evidence in Vanuatu. Some non-linguistic sources suggest that kava-drinking began in Polynesia. This is the easiest theory to argue against, however, as there is no biological evidence that the *Piper methysticum plant from which the drink is taken is indigenous to any of these islands.

Other sources suggest that kava originated somewhere in the western Pacific rather than in the east. Some early twentieth century commentators suggested that kava-drinking began in Papua New Guinea, and that this custom was later supplanted in all except residual pockets by the chewing of betel nut. One problem with this interpretation is that there is good evidence that *buaq can be reconstructed as a term for ‘betel nut’ as far back as Proto Austronesian, and there is also associated vocabulary going back a very long way which suggests that this was chewed. Thus, rather than representing a relatively recent introduction, the chewing of betel nut seems to be of much greater antiquity on linguistic grounds.

Despite this, some more recent studies have also supported a western origin for kava. Lebot and Cabalion (1986:19-21) presented an argument on botanical grounds that the plant may have originated in the cooler highland forests of Papua New Guinea. Their chemotypic and genetic work suggested that kava probably evolved from *Piper wichmanii, a plant that is found in an arc from Papua New Guinea to Vanuatu (see Map 1). Although this plant is similar in appearance to *Piper methysticum, it grows wild, and its roots cannot be used for drinking, a fact which is reflected in the Bislama name for this plant, that is, waelkava.

The kava plant can reproduce itself when a branch from an old plant bends back to the ground allowing a new plant to take root from it. However, for kava to spread from island to island human agency is essential. Thus, if kava did originate in the west, its occurrence further to the east could only be accounted for as being the result of human migration, as there is no biological evidence for the multiple domestication of *Piper wichmanii (Lebot, pers.comm.).

Though there has been considerable variety of opinion in the past as to the biological source of domesticated kava, much of the discussion has been based on an incomplete knowledge of the botanical information. Lebot (pers.comm.) now indicates that his own and Cabalion’s earlier conclusion appears to have been in error, and that the most recent scientific evidence points to Vanuatu as the most likely point of initial domestication of kava. It now appears that *Piper methysticum may not be a separate species after all, but simply a

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4 Interestingly, despite the remarkable agreement between archaeology and the oral tradition associated with the Roi Mata stories, these have recently been declared by representatives of Ifira to be mere colonial fabrications (Kalsakau 1990:26). The same writer goes on to recommend that these fabrications which have been recorded for posterity and stored in the Vanuatu Cultural Centre should be removed and burned (Kalsakau 1990:27).
domesticated variety of *Piper wichmanii* (Lebot 1989:97-99), with the northern islands of Vanuatu representing the most likely point of domestication (Lebot 1989:112-113). Such a conclusion would also be consistent with widespread oral tradition in northern Vanuatu which points to central Maewo being the source of kava in the northern islands (Huffman pers.comm.), and Lebot (pers.comm.) even goes so far as to say in written comments on an earlier version of this paper that he would localise the domestication of kava on biological grounds specifically to Maewo.

Whatever the eventual conclusion as to the botanical and geographical origin of kava, Vanuatu, with its current concentration of different varieties when compared with other kava-growing areas, apparently represents a major dispersal point for kava throughout the Pacific. It was from there that kava evidently spread initially into Fiji and ultimately to the rest of Polynesia and Micronesia. (This does not preclude the possibility of later reintroductions back into Vanuatu, which could account for some of the oral traditions pointing to an eastern origin for kava.)

If kava were to have originated from the west rather than in Vanuatu as some have suggested in the past, there have been no clear indications as to who might have been the first people to introduce it into Vanuatu. The first human immigrants in Vanuatu were presumably – but by no means certainly – what are now referred to as Lapita people. This culture spread into island Melanesia (and then also into Fiji, Tonga and Samoa) between 4,600 and 3,000 years ago (Bellwood 1987:48). Bellwood (1987:51) presumes that all of the present-day major plant foods (i.e. taro, yam, banana, breadfruit, coconut) were used by these people, who would necessarily have had agricultural capabilities. There is, indeed, plentiful linguistic evidence adduced elsewhere in this volume to show that the Proto Oceanians were agricultural.

Again assuming a possible western origin for kava, it might be tempting to suggest that *Piper methysticum* might have been introduced into Vanuatu, and from there to the rest of the Pacific, by the Lapita people when they arrived at least 3,000 years ago (Shutler & Shutler 1975:59). The Lapita people are fairly widely assumed to have been the speakers of Proto Oceanic (or its immediate and still closely related descendants). However, if the Proto Oceanians were indeed agricultural and brought with them yams, taros, breadfruit and bananas, this would not necessarily mean that they planted kava as well. It is logically possible that kava may have been a more recent introduction, spreading sometime between the arrival of the Lapita people in Vanuatu at least 3,000 years ago and the death of Roi Mata about 700 years ago.

Although I referred at the beginning of this paper to the reconstruction of *kava* as a Proto Oceanic term, this reconstruction is by no means unproblematical. I will return to this point later, but the only word for kava that can be assumed with any certainty to have any degree of antiquity in the Melanesian area is Clark’s (n.d.) reconstruction of *maloku* in the language ancestral to probably all of the languages spoken between Efate and the Torres Islands in Vanuatu, that is, Proto North-Central Vanuatu. The details of the phonological histories of most of these languages are still so poorly known that we are not yet in a position to decide if all of the reflexes of putative *maloku* are regular reflexes of this original form rather than post-dispersal introductions via diffusion, but the wide variety in the shape of reflexes certainly suggests that the form is quite old, for example:
This evidence is therefore consistent with the more recent view of Lebot that kava represents a northern Vanuatu domestication of an initially wild plant. This domestication could be dated at the time of, or shortly after, the breakup of Proto North-Central Vanuatu, that is, about 3,000 years ago. Geraghty (pers.comm.) points out that *maloku is also reflected in Fijian, though there it means ‘quiet, subdued’. If this were the original Proto Oceanic meaning of *maloku, the Northern and Central Vanuatu languages would have been adopting a common strategy in coopting a word with a similar meaning to refer to a new cultural development.

There are isolated areas in northern and central Vanuatu which do not reflect *maloku, but these could easily represent later local innovations. Southern Paamese, for example, has malou as the regular reflex of *maloku, while the closely related northern dialect has vatimeâi. This appears to be a very recent semantic shift, as the cognate form in the southern dialect (i.e. vâi-mélâl) means ‘stem of wild kava (i.e. *Piper wichmanii)’. Big Bay naxai from Santo looks as if it might originally have just meant ‘wood, tree’. The only languages which widely reflect forms other than *maloku are the languages of south-west Malakula, which seem to derive from an earlier form that had the approximate shape *mbVIVkVndrV, and the languages of the Torres and northern Banks Islands, which have forms of the general shape (nV)yV. As languages reflecting these forms are all spoken contiguously, however, these facts are consistent with the suggestion that these names could have diffused relatively recently, replacing an earlier reflex of *maloku.

If kava did indeed originate in Vanuatu, then its occurrence in isolated pockets in Papua New Guinea must be explained, a fact which Lebot (1989:92) concedes to be problematic. Kava was presumably not introduced into Papua New Guinea directly from Vanuatu, or we would expect to find greater evidence of its use in the intervening Solomon Islands. It is, of course, possible that there have been a series of losses and reintroductions of both kava and betel nut over the millennia, with Solomon Islands having only relatively recently switched to betel-nut-chewing over kava-drinking. The same explanation might also account for the fact that kava-drinking on the mainland of Papua New Guinea is so patchy, with the largest area of kava-drinkers coming from the Western Province near the Irian Jaya border, well away from the nearest Austronesian-speaking people. Lebot (pers.comm.) mentions that the names for kava in some of those languages on mainland Papua New Guinea spoken in areas where kava is drunk also mean ‘root’. Such a clear extension of meaning would also be compatible with the idea that kava represented a relatively recent introduction however; if kava were very old, we might expect its names to be rather more opaque.

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5 Until the phonological histories of these languages are better known, the vowels here will need to be unspecified. It is also worth pointing out that this could still be an irregular local reflex of *maloku.
The word for kava in most areas of Fiji is *yaqona, while in some areas the variants *qona and *waqona are found. This probably represents a semantic extension from earlier *kona ‘bitter’. Geraghty (pers.comm.) points out that there are a number other instances of *a-/wa- with some kind of nominalising function in Fijian. If we were to assume that kava was being drunk by the speakers of Proto North-Central Vanuatu, their descendants might be expected to have taken it with them on their canoes when they sailed off to colonise Fiji. The fact that Fijian does not share a cognate with the languages of Northern and Central Vanuatu suggests that perhaps kava also spread to Fiji after the initial settlement of these islands from Vanuatu.

Huffman (pers.comm.) reports oral tradition in Maewo as pointing to ancient contacts between Maewo and parts of the interior of western Viti Levu in Fiji. Lebot and Cabalion (1986:169) suggest on genetic grounds that there was probably traffic in kava backwards and forwards between Vanuatu and Fiji, as well as between Fiji and the islands of Polynesia. This non-linguistic evidence is also consistent with a post-settlement origin for kava on Maewo. The fact that the Fijians did not borrow the Maewo word for kava when they acquired it can perhaps be explained by the fact that if only a single canoe-load of people from Maewo were to land on western Viti Levu with a few cuttings of kava, we would not necessarily expect the Maewo word to be transferred. Local Fijian creativity could well have won out, with the word *kona ‘bitter’ being coopted.

The oral tradition in Fiji does not fit so neatly with Vanuatu representing the point of origin for kava, as this generally gives a Tongan origin. However, some stories also report that while there was kava before its introduction from Tonga, it was either better varieties that were introduced from Tonga, or it was the elaborate kava ritual that came from the east. The Fijian word tānao ‘kava serving bowl’ represents a Tongan borrowing, which would be consistent with the suggestion that kava could have been introduced more than once into Fiji, initially presumably from the west, and later again from the east.

Walsh and Biggs (1966:30) present the reconstruction of the word *kawa ‘kava’ for Proto Polynesian as uncontroversial. If this reconstruction is in fact correct, then we would need to assume that the Proto Polynesians arrived from Fiji in the Proto Polynesian homeland with kava in their kitbag. It is interesting to note that it was not a reflex of *kona that the Proto Polynesians used, but an innovated form. One possible explanation is that Proto Polynesian *kawa did not originally refer to kava, but that it meant ‘bitter’ or ‘sour’. On Easter Island, where *Piper methysticum was not known, the word kava means ‘bitter’. While reflexes of *kawa in East Futunan, East Uvean, Tongan and Samoan refer exclusively to *Piper methysticum, its reflexes in Hawaiian, Marquesan, Rarotongan and Tuamotuan mean both ‘sour’ and ‘*Piper methysticum’. Thus, we could also suggest that *kawa in Proto Polynesian could just as easily have meant ‘sour, bitter’, with reflexes of this word later coming to refer independently to a newly introduced plant.

In discussing the origin of the form *kawa in Proto Polynesian, there is another point that we should consider as well. Geraghty (pers.comm.) notes that *kawa is also possibly cognate with the Fijian word waqawaqawa ‘Piper betel’, with wā in Fijian meaning ‘vine’, and wā(qa)qawa ‘Piper insectifugum (?)’. While seemingly at odds, these two accounts are

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6 For example, ?alava and ?ariki, both meaning ‘chief’.
7 Analogy with this morpheme could be the explanation for the occurrence of waqona as a local variant of *yaqona in Fiji, as noted above.
not necessarily in conflict. There is no reason why we cannot reconstruct *kawa as having meant both ‘Piper betel’ and ‘sour/bitter’ in Proto Polynesian. Anyone who has chewed a betel nut will detect a definite tang in the fruit, leaves or bark of this plant.8

It is still likely that the immediate descendants of the Proto Polynesians took kava with them when they ventured out into distant parts of the Pacific. Geraghty (pers.comm.) reports that the Ponapean word sakau and the Kosraean suhka represent fairly old borrowings from Polynesian *ta kawa, suggesting a Polynesian rather than a Melanesian origin for kava in Micronesia. The first Polynesian migrants in New Zealand probably also brought kava with them, though it failed to grow in the colder climate. However, the plant kawakawa of the related Macropiper excelsum from a different genus (which the Maori used for medicinal purposes) is found there. The word kawa in Maori is also used to mean ‘marae protocol’, which would accord with kava having been previously used in a ceremonial context as we find in Polynesia today.

In the earlier discussion of the distribution of kava in Papua New Guinea, I omitted any detailed reference to the two islands in Manus Province where kava is also known, that is, Lou and Baluan. In Lou, kava is known as ka, while in Baluan it is kau. The mainland areas of New Guinea adjacent to the island of Karkar also exhibit apparent cognates of these forms, that is, keu and kau. The occurrence of these forms in non-Polynesian Oceanic languages was presumably the basis of the reconstructions by Grace (1969) and Blust (1972c) of a Proto Oceanic form for kava. However, the phonological similarity of these forms to reflexes of Proto Polynesian *kawa, and the occurrence of apparently borrowed reflexes of this form in Ponapean and Kosraean suggests that the drinking of kava in Manus was possibly introduced from Polynesia via Micronesia, an interpretation which is also suggested by Lebot (1984:91).

While the linguistic evidence for kava having a fair degree of antiquity in northern and central Vanuatu is strong, as we would expect from the biological information, there is no linguistic evidence for kava having been present for this long to the south of Efate. The languages of Erromango, Tanna and Aneityum are well known for their tortured phonological histories, rendering many widespread Oceanic cognates almost unrecognisable. In Lenakel, Kwamera and West and South-West Tanna the word for ‘kava’ is nfkava and on North Tanna it is nika,9 while on Aneityum the word is simply kava. Sie, the only surviving language on Erromango, has nayave, again carrying the added initial syllable, but still reflecting essentially the same original root. This kind of evidence suggests that kava may not have been present in southern Vanuatu even while it was present in the north, and that it was only introduced much later via back migrations from Polynesia, and that the Polynesian words for kava were borrowed into these languages relatively recently.

Lebot (1984:9) notes that there is a major break in the distribution of kava varieties on either side of a line drawn between Efate and Erromango, which would be consistent with this claim that kava has a separate history in the south. There is also a major ocean gap between Efate and Erromango, which could explain why the earlier discovery of the

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8 Geraghty (pers.comm.) also points out that the forms wāqawaqawa and wā(qa)qawa would also be consistent with the reconstruction of a separate Proto Central Pacific form *qawa, referring to some kind (or all kinds?) of Piper species, which would take these forms out of consideration in the history of the form *kawa in Proto Polynesian.

9 An initial syllable beginning with n- is present in most nouns in the languages of Tanna.
pleasures of *maloku (as well as the word) did not reach the southern islands at the same time.10

Huffman (pers.comm.) and Lebot (1989:93-94) report that oral tradition in the southern islands of Vanuatu points to Futuna representing the source of kava in these islands, with Tonga and Samoa representing the islands of origin further to the east. If this is in fact the case, it could be that kava was introduced into the southern islands of Vanuatu when the ancestors of the present-day speakers of Aniwa-Futunan – themselves already kava-drinkers – arrived from the east. The fact that it is even possible to trace the path taken by kava when it was introduced from Futuna to various parts of Tanna (Huffman, pers.comm.), whereas it is not possible to be so specific in the north, is also consistent with the proposition that kava represents a more recent introduction in the south.

While much of the evidence from linguistics, oral tradition and biology on the origin of kava falls together quite nicely, there are some problems. Perhaps the greatest is explaining the isolated pockets of kava-drinking in Papua New Guinea (and the Solomon Islands?) if domestication began in northern Vanuatu rather than in the west. In the case of most parts of the mainland of New Guinea, I have already suggested that these may represent backwards diffusions ultimately from northern Vanuatu.

Another logical possibility to consider is that *npali ‘betel nut’. The people of Tafea today do not chew betel nut,11 and Lindstrom (pers.comm.) points out that there is no archaeological evidence for lime-making in Vanuatu, so it is unlikely that the people of the southern islands were ever betel-nut chewers. If they had a name for the palm, it may be that they used it instead for building, as the split trunks make good walls and floorboards. Lindstrom (pers.comm.) also points out that there are a number of Areca-like species on Tanna, all producing useless nuts, so it could also be that Lynch’s reconstructed form *npali actually refers to a different palm altogether.

There are obviously limits to what historical linguistics and non-linguistic evidence can tell us about the distant past. We may never know with absolute certainty where kava was first drunk, when and by whom, and how it was first discovered. In this discussion, I have examined the linguistic evidence and tried to interpret this with what archaeology, oral tradition and botany can tell us. The overall conclusion is that kava-drinking was most probably introduced fairly early on, following the routes indicated on Map 3, and that it was not a Proto Oceanic plant at all.

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10 Linguistically, of course, the southern islands of Vanuatu are something of a mystery, and it is difficult to know how to interpret the lack of close relationship of these languages to other Oceanic languages in terms of the non-linguistic evidence on the settlement of the Pacific.

11 In fact, they refer to betel nut in Bislama as rabis kokonas ‘useless coconut’.
This is a conclusion that was only possible by considering linguistic and non-linguistic evidence at the same time. Considering the linguistic evidence in isolation in the past has resulted in the probably erroneous reconstruction of Proto Oceanic kava-drinking. If we linguists want archaeologists to take our attempts at cultural reconstruction seriously, we have to put our house in order and attempt to seriously consider the archaeological implications of our reconstructions. If we are going to argue that the Proto Austronesians, for example, were metallurgists, then we must try to accommodate these people at an appropriate time and place where metallurgy is known to have been practised. Alternatively, we have to persuade archaeologists to dig deeper in other places and in other strata to see if they can uncover evidence of cultural practices suggested by the linguistic evidence but for which archaeology so far offers no clues.
## APPENDIX: KAVA TERMS

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¹² The meaning of the various diacritics in the Papua New Guinea examples is not explained in the sources from which these examples were taken. Most of these attestations are taken from the work of Vincent Lebot, and from Lebot and Cabalion (1986).
1. INTRODUCTION

1.1 AIM

Proto Malayo-Polynesian (PMP) vocabulary as presently reconstructed contains a number of reconstructions for sago and other items whose reflexes in different languages are semantically interconnected. They thus form a natural terminological set in that the study of one involves consideration of or reference to one or more of the others in the set. This set is that represented by the following reconstructions first proposed for “Uraustronesisch” (=PMP) by Dempwolff (1938): *rumbia ‘sago palm’, *sa(ŋ)gu ‘sago (flour)’2 and *qatep ‘thatch’.3 These items are well known to Austronesianists although generally only individually. That is, they have not hitherto been discussed as a set, although much of the same evidence as that presented here has been used by Blust in working up his proposed Proto Austronesian (PAN) addenda and etymologies (Blust 1970, 1972c, 1980a, 1983-84a, 1986, 1989a) and Austronesian homeland article of 1984-85. It is therefore the purpose of this paper to take this set of items and examine them from a semantic field point of view to see whether the phonemic shapes of presently proposed reconstructions and the wording of their presently proposed reconstructed glosses accurately reflect the phonemic shapes and meanings of the witnesses available, and if not, to suggest possible refinements. In the process the interconnection of the items concerned will be demonstrated and how they have persisted or changed over time and in different places. Finally an attempt will be made to draw historical and other inferences about the horticultural and other practices of prehistoric Austronesian populations from the reconstructed set.4

Before taking up these tasks, however, an explanatory word about ‘sago’.

1 In presenting these items I use Dyen’s practical orthography but without the various subscripted phonemes he proposed.
2 Dempwolff’s gloss is actually ‘pith of a plant, sago’ but as I argue later the comparative evidence suggests that this actually referred to sago starch or flour.
3 Excluded from this set for the time being is Dempwolff’s PMP *meñak ‘fat’ and *biRaq ‘a kind of plant’. These have so far only been found to interconnect semantically with the above set in one instance each, viz. for *meñak in Mbula (Western Oceanic) meene ‘sago palm, starch’ (Bugenhagen, pers.comm.) and for *biRaq in Buru (Central Malayo-Polynesian) bia labin ‘sago palm’ (Tryon, ed. 1994:08.810fn.). However, it seems to me that further reflexes of *meñak with the meaning ‘sago palm, sago starch’ are likely to be found as ‘fat’ is closely connected with ‘taste, essence’ in Pacific cultures. For a list of presently available reflexes of *meñak see Appendix 3.
4 The stimulus for this study comes from an earlier one of mine on foodstuffs and associated agricultural terms in Papua (Dutton 1973).
MAP: DISTRIBUTION OF OLD WORLD PALM GENERA USED FOR SAGO MAKING
(after Ruddle et al. 1978:6)
1.2 SAGO

The English word 'sago', unless qualified by 'palm', 'tree' or some other word, refers to the starch or flour that is extracted from a number of palm taxa that occur naturally throughout the tropics – see Figure 1. According to botanists these palms attained their world-wide distribution millions of years before man became a factor in plant distribution. At least fourteen species of sago palm are exploited for their starch and other products around the world. These belong to eight genera although only five of them – Arenga, Caryota, Corpyha, Eugeisson and Metroxylon – are found naturally in the Austronesian world. Of these the Arenga and Metroxylon are the most common and Metroxylon the most commonly processed. These palms occur throughout most of the area occupied by Austronesians – from Samoa, Tonga and Fiji in the east to the Asian mainland in the west – see map. In most of these areas sago palms are economically important but are only one of a number of economically important palms, for example, coconut palms, areca nut palms, nipa palms, the latter of which grow wild in much the same locations as sago palms and provide supplementary foods and building materials.

Prehistorically the importance of sago to local economies derived from the following features:

(i) Sago palms occurred naturally in extensive low-lying coastal freshwater swampy areas although some species tolerate elevations up to 800m (Ruddle et al. 1978:47). Sago palms were thus very accessible, were not cultivated (although they are (or were) planted both within and outside their natural range of habitat), and were always there for the taking – in today’s terms, an important renewable resource.

(ii) Besides starch the palms also provided materials for house construction and the manufacture of weapons, artefacts and even clothing. Some varieties also provided medicines and magic potions.

(iii) Sago palms may be harvested at any time of the year when the plant is preparing to flower or soon afterwards. At this time the amount of starch stored in the plant is at a maximum. Sago production is therefore environmentally friendly as only palms that are about to flower or are flowering are removed. Sago palms take about 8-15 years to mature and die once they have flowered if not harvested. They regenerate naturally by suckering.

(iv) “Sago production is a highly efficient means of provisioning a community” (Ruddle et al. 1978:64). In terms of the man-hours required to produce one million calories it is estimated that sago production outranks sedentary agriculture or hunting and gathering and is on a par with shifting cultivation (ibid., p.64).

(v) Sago starch is a useful foodstuff because it can be stored in a processed state for longish periods or may be kept in an unprocessed state (e.g. as logs in water or under dampened leaves) until needed (Ruddle et al. 1978:27).

(vi) Although sago is nutritionally speaking a poor quality food it can generally be supplemented by or garnished with other foods that occur in the same area, for example, fish and other aquatic animals, nuts, grubs (often cultivated in fallen sago palms), bamboo shoots, ferns, fungi and the young tender inner leaves (or ‘cabbage’) of the sago palm itself.

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5 There is considerable variation in the amount of starch produced by different species of palms in different locations, but on average palms at flowering produce between 70 and 150 kg (Ruddle et al. 1978:Table 3).
FIGURE 1: A SAGO PALM
[after Barrau (1959:152)]

FIGURE 2: Tacca pinnatifida

FIGURE 3: Manihot esculenta
(vii) The tools required for obtaining and processing sago are non-specialised or are easily fashioned from locally available materials or other tools. Processed sago is also easily prepared for eating by roasting, baking, frying or boiling, most of which activities can be carried out with locally available materials such as bamboo and the large leaves of certain plants.

Thus areas in which sago palms are found in some quantity provide the basic necessities of life—a kind of traditional equivalent of the modern supermarket. It seems natural to assume therefore that this resource would have been utilised by Austronesian travellers-cum-colonisers, and indeed, could well have been an important factor in the method of expansion of Austronesians. Provided the environment remains much the same from place to place (and it does until coral atolls are reached) it is reasonable for travellers to expect that they will find sago and associated foodstuffs wherever they go. That implies that one need not be restricted in one’s movements by the storage life of other perishable foodstuffs.

1.3 METHOD AND ASSUMPTIONS

For the purposes of this paper cognate sets have been established using a ‘top down’ approach. In this approach previously suggested protoforms have been taken as a starting point and decisions made about cognacy or otherwise on sets of correspondences based on currently available accounts of the historical phonologies of individual languages or of particular subgroups of languages. These correspondence sets are set out in Appendices 1 and 2. This does not mean, however, that all putative witnesses reflect only these proto-sounds—some may reflect other sounds as well. Thus, for example, Tagalog and Maranao g reflects both PAN *R and PAN *g. Nor does it mean that every putative cognate necessarily reflects an etymon exactly as expected—there are sometimes exceptional reflexes and unexplained changes.

In checking the proto-meanings of etyma as presently suggested I use a method of semantic reconstruction that combines some elements of lexical reconstruction, as proposed by Dyen and Aberle (1974), with principles of semantic reconstruction proposed by Blust (1987a). Significant technical terms used in applying this method are:

Candidate: the highest-order etymon of a set of cognates with members in different subgroups;

Included: one candidate is said to be included in another if that candidate appears in a list of subgroups that is a subset of the list of subgroups in which the other candidate appears. A candidate which is not included by any other is unincluded.

6 Sago palms are (or were) felled with an axe or adze. The starch is (or was) then extracted by pounding the pith with an adze or wooden or bamboo mallet and then washing the pounded pith in water and allowing the starch to settle out in vessels made from parts of the palm frond. Depending on locality sago may be extracted in situ or logs may be transported (usually by floating downstream) to more favourable locations.

7 As Ruddle et al. (1978:64) point out estimates of yields of sago palms “must be regarded with a good deal of caution, as the length of time to maturity and the harvest of palms at various stages of maturity in any tract make estimation of productivity per hectare very difficult”. In fact estimates of productivity by different researchers in different geographical areas range between 7 and 330 palms per hectare per year (Ruddle et al. pp.61-62). Barrau (quoted in Ruddle et al. p.61), for example, estimates that a one-hectare “normal swamp forest stand” produced about 52 harvestable palms annually in Irian Jaya.
An unincluded candidate is inferred to have had the meaning of the list in which it is found.

In applying this method and also in making decisions about the provenience of etyma I use Blust's (1987a:90-91) hypotheses about first-order subgroups of Austronesian languages represented by the following family tree diagram:

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Proto Austronesian

<table>
<thead>
<tr>
<th>Formosan languages (FOR)</th>
<th>Malayo-Polynesian languages (MP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Malayo-Polynesian languages (WMP)</td>
<td>Central-Eastern Malayo-Polynesian languages (CEMP)</td>
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<tr>
<td>Central Malayo-Polynesian languages (CMP)</td>
<td>Eastern Malayo-Polynesian languages (EMP)</td>
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<td></td>
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<tr>
<td>South Halmahera-West New Guinea languages (SHWNG)</td>
<td>Oceanic languages (OC)</td>
</tr>
</tbody>
</table>
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Oceanic languages are further divisible into a number of first-order subgroups (although there is still only a modest amount of agreement amongst Oceanists about their number and relative ordering). The following are taken from Tryon's (1994, ed.) overview: the Admiralty Islands (ADM) languages, Western Oceanic (WOC) languages (of Papua New Guinea and the north-west Solomon Islands), Central-Eastern Oceanic (CEOC) languages (of the south-east Solomon Islands, Micronesia and the rest of the Pacific). The latter are further divisible into the South-East Solomon Islands (SES), Eastern Outer Islands (EOI),

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8 These differ from the views presented in Reid (1982) for example. There he argues that at least the North Philippine languages constitute a primary subgroup, called Outer Philippines, distinct from the Malayo-Polynesian languages of Indonesia and Oceania. Furthermore no one seriously believes in PWMP any longer – WMP is a convenient geographical label. However, for present purposes it is convenient to refer to PWMP.

9 In this chart Formosan languages include one or more primary subgroups in Taiwan, here treated as a genetic unit; Malayo-Polynesian languages include all extra-Formosan Austronesian languages; Western Malayo-Polynesian languages include all the Malayo-Polynesian languages of Botel Tobago Island, the Philippines, the Marianas, Belau, Sulawesi and its satellites, Borneo, Sumatra, Java, Bali, Lombok and western Sumbawa, Malaya, Vietnam and Kampuchea (Chamic), and Madagascar; Central-Eastern Malayo-Polynesian languages include all other Malayo-Polynesian languages; Central Malayo-Polynesian languages include the languages of eastern Indonesia from eastern Sumbawa (Bimanese) eastwards through the Lesser Sunda chain and northwards to the central Moluccas (Seram, Ambon, Buru, the Sula Archipelago); Eastern Malayo-Polynesian languages include all other Central-Eastern Malayo-Polynesian languages; South Halmahera-West New Guinea languages include the Austronesian languages of Halmahera and of the north coast of New Guinea as far as the Mamberamo River, together with the Raja Ampat Islands; Oceanic languages include all the Austronesian languages of Melanesia, Micronesia and Polynesia except those belonging to subgroups already mentioned.
Micronesian (including Kiribati, Marshallese, Ponapean, Woleian) (MIC), North-Central Vanuatu (NCV), Southern Vanuatu (SV), New Caledonia (NC), and Central Pacific (CP) which includes, amongst others, the Polynesian (PN) languages.

In keeping with the comparative method, cognates are only attributed to an etymon at that node in the family tree that immediately dominates the subgroups containing the languages in which the witnesses are found. Thus, following the subgrouping hypothesis outlined above an etymon can only be attributed to Proto Austronesian if witnesses are found in a Formosan language and a Malayo-Polynesian language.

1.4 MATERIALS

The data on which this paper is based were obtained from both published and unpublished sources.

Published sources include dictionaries of individual languages, linguistic publications listing reconstructions proposed for various interstage protolanguages within Proto Austronesian and several specialised botanical works which contain, amongst other information, local names for sago and other plants involved in this study. Unpublished sources include unpublished manuscripts on relevant languages or topics, fieldnotes, vocabulary lists and information of my own and of others with relevant specialist knowledge.10 Where items were initially obtained from botanical works these have been checked against information given in published dictionaries wherever possible. Botanical and other information was obtained from a number of general and specialised works listed in the Combined Bibliography.

1.5 CONVENTIONS

In setting out and discussing the results of this study the following conventions and procedures have been adopted:

1. Contemporary language material is quoted as obtained from the sources used except that ? is used for glottal stop and u for oe in Dutch sources;

2. The following abbreviations are used for languages and protolanguages:

10 I am deeply indebted to the following for their assistance in this regard: John and Marjorie Beaumont, Alan Brown, Robert Bugenhagen, Sandra Callister, John Clifton, Bryan Ezard, Jim and Cindy Farr, David Lithgow, Ramona Lucht, Ken McElhannon, Cliff Olson, John Roberts, Gerhard Tauberschmidt, and David and Fran Wakefield of the Summer Institute of Linguistics; Alexander (Sander) Adelaar, Alan Jones, Roger Keesing, Don Kulick, Robert Langdon, John Liep, Ling Matsay, Martha McIntyre, Mark Mosko, Nigel Oram, Andrew Pawley, Lawrence Reid, Malcolm Ross, Darrell Tryon, James Weiner and Michael Young of the Australian National University (or affiliated with it at the time); Rick Goulden, Sue Holzknecht, Paul Li, Naomi McPerson, Otto Nekitel, Rev. Rufus Pech, Gunter Senft, Geoff Smith and Bil Thurston of other institutions; and Dumo Tom and ‘Thomas’ (a driver of the University of Technology, Lae) of Papua New Guinea. I am also indebted to Sander Adelaar, Bob Blust, Jim Fox, Paul Geraghty, John Lynch, Andrew Pawley, Laurie Reid, Malcolm Ross, Darrell Tryon and Dave Walsh for commenting on an earlier version of this paper and/or for providing additional information. None but myself is to be held responsible for any errors or misinterpretations in this paper, however.
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<td>Tolai</td>
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Other more general conventions are:
* established or proposed reconstruction
** anticipated or expected but non-occurring reflex

### 2. THE COGNATE SETS

(1) *rumbia

<table>
<thead>
<tr>
<th>Area</th>
<th>Form</th>
<th>Meaning</th>
<th>Lg/Dialect</th>
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<td>Kadažan</td>
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<td>sago</td>
<td>Sangir</td>
<td>Steller &amp; Aebersold (1959), Heyne (1950:330)</td>
</tr>
<tr>
<td></td>
<td>humbia</td>
<td>sago palm</td>
<td></td>
<td>Sneddon (1984)</td>
</tr>
<tr>
<td></td>
<td>*Rumbia</td>
<td>sago palm</td>
<td>Proto Sangir</td>
<td>van der Veen (1940)</td>
</tr>
<tr>
<td></td>
<td>rumbia</td>
<td>large Colocasia sp. used for pig food</td>
<td>Tae'</td>
<td>van der Veen (1940:532)</td>
</tr>
<tr>
<td></td>
<td>rombia</td>
<td>Colocasia sp.</td>
<td>Pu'u Mboto dialect of Bare'e</td>
<td>van der Veen (1940:532)</td>
</tr>
<tr>
<td></td>
<td>*rumbia</td>
<td>the sago palm, Metroxylon spp.</td>
<td>Proto S.Sulawesi</td>
<td>Mills (1975)</td>
</tr>
</tbody>
</table>
This is the same as *M. rumphi*. Merrill (1946) lists *Caryota* spp. and *Arenga* spp. as also occurring but the local names given are not cognate with those given here.


Heyne (1950:330) also gives *rambia* for Talaud and as a variant of *rumbia* for Malay.

<table>
<thead>
<tr>
<th>CMP</th>
<th>lupia, ripia&lt;sup&gt;1&lt;/sup&gt;</th>
<th>sago a palm tree</th>
<th>Central Maluku</th>
<th>Collins (1983)</th>
</tr>
</thead>
<tbody>
<tr>
<td>rumbia</td>
<td></td>
<td></td>
<td>Tetun (Timor)</td>
<td>Morris(1984)</td>
</tr>
</tbody>
</table>

1 Dempwolff also gives *rofia ‘Espèce des palmier très commun à Madagascar...Sagus raphia’* for Malagasy but this is most likely a borrowing as it is not of the expected form **humbia** (Adelaar, pers.comm.).

<table>
<thead>
<tr>
<th>OC</th>
<th><em>rabia</em></th>
<th>sago</th>
<th>Proto Oceanic</th>
<th>Ross (1988:159)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ADM)</td>
<td>api (and related forms)</td>
<td>sago</td>
<td>Admiralty Is</td>
<td>Z‘Graggen (1975:165)</td>
</tr>
<tr>
<td>(WOC)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>lábi</td>
<td>sago palm, sago starch thatch</td>
<td>Jabem</td>
<td>Streicher (1982:275)</td>
</tr>
<tr>
<td></td>
<td>lambi</td>
<td>sago starch</td>
<td>Iwal</td>
<td>Thomas (pers.comm.)</td>
</tr>
<tr>
<td></td>
<td>labiya</td>
<td>sago palm, sago starch</td>
<td>Dobu</td>
<td>Lithgow (pers.comm.)</td>
</tr>
<tr>
<td></td>
<td>labia</td>
<td>sago palm</td>
<td>Kalauna, Basima</td>
<td>Young (pers.comm.)</td>
</tr>
<tr>
<td></td>
<td><em>rabia</em></td>
<td>sago</td>
<td>Proto Central Papuan</td>
<td>Ross (1979)</td>
</tr>
<tr>
<td></td>
<td>rabia</td>
<td>sago</td>
<td>Motu</td>
<td>Lister-Turner &amp; Clark (c.1954)</td>
</tr>
<tr>
<td></td>
<td>labia</td>
<td>sago palm, sago starch, thatch</td>
<td>Iamalele</td>
<td>Beaumont (pers.comm.)</td>
</tr>
<tr>
<td></td>
<td>labiya</td>
<td>sago palm, sago starch</td>
<td>Misima</td>
<td>Callister (pers.comm.)</td>
</tr>
<tr>
<td></td>
<td>yabiya</td>
<td>sago palm, starch</td>
<td>Iduna</td>
<td>Lucht (pers.comm.)</td>
</tr>
<tr>
<td></td>
<td>rafi</td>
<td>sago starch</td>
<td>Ubir</td>
<td>Money (1907)</td>
</tr>
<tr>
<td></td>
<td>rafiy</td>
<td>sago palm, starch</td>
<td>Arifama-Miniafia</td>
<td>Wakefield (pers.comm.)</td>
</tr>
<tr>
<td></td>
<td>yabia</td>
<td>sago palm, thatch</td>
<td>Kilivila</td>
<td>Senft (pers.comm.)</td>
</tr>
<tr>
<td></td>
<td>yambiya</td>
<td>sago starch</td>
<td>Sud-Est</td>
<td>Anderson (1990:101)</td>
</tr>
<tr>
<td></td>
<td>labia&lt;sup&gt;2&lt;/sup&gt;</td>
<td>sago palm</td>
<td>Tolai</td>
<td>Lanyon-Orgill (1960:219)</td>
</tr>
<tr>
<td>(SES)</td>
<td>laibia, naibia&lt;sup&gt;3&lt;/sup&gt;</td>
<td>manioc</td>
<td>Kwaio</td>
<td>Keesing (pers.comm.)</td>
</tr>
<tr>
<td>(CP)</td>
<td>yabia&lt;sup&gt;4&lt;/sup&gt;</td>
<td>Tacca sp.</td>
<td>Fijian</td>
<td>Pawley (pers.comm.)</td>
</tr>
</tbody>
</table>

1 Not included in this listing are a number of suspected or known borrowings in non-Austronesian languages in Papua New Guinea. For example, *rambi ‘sago palm’* in Kovai (Umboi Is) (Brown, pers.comm.). *Rabak‘*sago palm leaf stalk’ in Mbula, an Austronesian language of the same island is also a borrowing from an as yet unidentified source. Its form suggests that it may be a re-borrowing from a non-Austronesian language (Ross, pers.comm.).
2 Lanyon-Orgill (1960:153) also gives *iabia* for 'arrowroot, *Tacca pin.*' in Tolai but this is most likely a borrowing as it is not of the expected form.

3 There is also a word *abiburu* in Arosi meaning 'make torch with sago palm leaves' which looks as if it could be related to these reflexes. However, if so, it has an unexplained shape as the expected reflex is **rabiburu.**

4 This is the base for a number of other derived forms in Fijian: *niu yabia* 'arrowroot palm', *yabia ni vavalagi* (lit. 'European arrowroot'), *'Maranta sp., Manihot sp.*, *yabia damu 'Manihot sp.'*, *yabia vula 'Manihot sp.***.

(2) *sa(ŋ)gu*

<table>
<thead>
<tr>
<th>Area</th>
<th>Form</th>
<th>Meaning</th>
<th>Lg/Dialect</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOR</td>
<td>No known reflexes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMP</td>
<td>sagó</td>
<td>sago starch</td>
<td>Tagalog</td>
<td>English (1965)</td>
</tr>
<tr>
<td></td>
<td>sago</td>
<td>juice</td>
<td>Tagalog</td>
<td>Dempwolff (1938)</td>
</tr>
<tr>
<td></td>
<td>sugu</td>
<td>starch from the sago palm <em>(lumbiya)</em> and the buri palm <em>(buri)</em></td>
<td>Cebuano</td>
<td>Wolff (1972)</td>
</tr>
<tr>
<td></td>
<td>sagó</td>
<td>a herbaceous plant, the roots of which are cooked and eaten</td>
<td>Pangasinan</td>
<td>Benton (1971)</td>
</tr>
<tr>
<td></td>
<td>sugu</td>
<td>the arrowroot¹</td>
<td>Ilokano</td>
<td>Constantino (1971)</td>
</tr>
<tr>
<td></td>
<td>sakul</td>
<td>to make sago</td>
<td>Manobo</td>
<td>Elkins (1968)</td>
</tr>
<tr>
<td></td>
<td>sugú</td>
<td><em>Metroxylon spp.</em></td>
<td>Manobo</td>
<td>Merrill (1923-26, 1:145)</td>
</tr>
<tr>
<td></td>
<td>sagó, sakú</td>
<td>Wikstroemia spp.</td>
<td>Manobo</td>
<td>Merrill (1923-26, 3:142)</td>
</tr>
<tr>
<td></td>
<td>sugú</td>
<td><em>Metroxylon spp.</em></td>
<td>Bisaya</td>
<td>Merrill (1923-26, 1:145)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Maranta spp.</em></td>
<td>Bikol, Ilokano</td>
<td>Merrill (1923-26, 1:250)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(arrowroot)¹ Wikstroemia spp.</td>
<td>Tagalog</td>
<td>Merrill (1923-26, 3:133)</td>
</tr>
<tr>
<td></td>
<td><em>sagu</em></td>
<td>sago</td>
<td>Proto Malayic</td>
<td>Adelaar (1992)</td>
</tr>
<tr>
<td></td>
<td>sugu¹</td>
<td>sago starch</td>
<td>Malay</td>
<td>Wilkinson (1932)</td>
</tr>
<tr>
<td></td>
<td>sugu</td>
<td>pearl sago</td>
<td>Malay</td>
<td>Winstedt (1963)</td>
</tr>
<tr>
<td></td>
<td>pohon sugu</td>
<td><em>Metroxylon spp.</em></td>
<td>Malay</td>
<td>Heyne (1950:330)</td>
</tr>
<tr>
<td></td>
<td>sugu</td>
<td>sago palm <em>(Metroxylon sp.), pith of sago palm</em></td>
<td>Malay (IND)</td>
<td>Labrousse (1985)</td>
</tr>
<tr>
<td></td>
<td>sugu¹</td>
<td>balls of cooked sago</td>
<td>Iban</td>
<td>Zorc (1982)</td>
</tr>
<tr>
<td></td>
<td>sugu</td>
<td>Mark (= marrow, pith, core), Mehl der sago-haltigen Pflanzen</td>
<td>Toba Batak</td>
<td>Warneck (1977)</td>
</tr>
<tr>
<td></td>
<td>sago</td>
<td>plant pith, sago starch</td>
<td>Ngaju Dayak</td>
<td>Dempwolff (1938)</td>
</tr>
<tr>
<td></td>
<td>saku</td>
<td>corn, maize</td>
<td>Malagasy</td>
<td>Dempwolff (1938)</td>
</tr>
</tbody>
</table>
manaku
(< root: saku)

to cook sago till hard
Kadazan (N. Borneo)
Antonissen (1958)
sago
Adenanthera pavonina L.²
Minangkabau
De Clercq (1927: Item 64)
sagu³
Metroxylon spp.
Ambonese Malay
De Clercq (1927: Item 2670)
sagu
sago starch
Javanese
Matsay (pers. comm.)
saku
Metroxylon sp.
Nias
Heyne (1950:330)
*sakul
beat sago with wooden hammer
Proto Sangir
Sneddon (1984)
sakulë
sago kloppen
Sangir
Steller & Aebersold (1959)

This provides the base for sago Bèanda ‘arrowroot’ (lit. ‘sago Holland’, i.e. ‘Dutch sago’) in Malay also
(Windstedt 1963). Like ‘sago’ the term ‘arrowroot’, unless qualified by ‘plant’ or some other word, refers
to the starch that is made from a number of plants that belong to quite different genera. In the Pacific
there are four genera of plants to which the term is applied. The most significant of these is the so-called
Tacca pinnatifida or ‘Polynesian arrowroot’ – see Figure 2. This is native to Africa and Asia and was
introduced to Australia and the Pacific (along with other economic species) by man “from Malaysia”
(Merrill 1954:217): “The root of this plant, properly prepared, makes an excellent strong jelly, like a
blanc mange, of the nature of salop, for which it is justly admired by these islanders” (p.349).

The other genera of plants that are commonly referred to as ‘arrowroot’ include Maranta arundinacea,
Canna edulis or so-called ‘Queensland arrowroot’, and Manihot esculenta – see Figure 3 – all three of
which are of South American origin and are post-Magellan introductions. Of these the most common is
Manihot which is commonly known as cassava or manioc and from which tapioca is made. Austronesian
names for these are generally based on the English words ‘arrowroot’ (e.g. aruru (Chamorro), arurú
(Tagalog), garut (Javanese), arurut (Tok Pisin, ‘Are’ ARE)), ‘tapioca’(e.g. tavioka (Fiji), tapiok (Tolai, Tok
Pisin)), manioc (e.g. manik (Tok Pisin), mendioka (Chamorro)), or ‘cassava’ (e.g. kasava (Kilivila)).

This belongs to the Leguminosae family. It refers to large trees whose leaves are used for house building.

This form is combined with different descriptive terms to describe different species in Malay in a manner
similar to that noted above in note 1 for ‘arrowroot’ (Merrill 1923-26).

EMP No known reflexes¹

¹ There is also a word sagharo in Waropen (EMP) meaning ‘palmsoort vloerlat gemaakt van deze palm’
(i.e. ‘type of palm used for making floor laths’) (Held 1942) which may be related to these other reflexes
but which is excluded because the reflexes of the relevant proto-sounds are not available for this
language.

OC (WOC)¹ ¹ sakur
big or ornamental spoon for stirring sago or taro puree Jàbem Streicher (1982)
sag pandanus used for sleeping mat Muyuw Lithgow & Lithgow (1974)
sleeping mat

¹ Not included in this listing is the Tok Pisin word saksak ‘sago palm, sago, sago swamp’ (Mihalic 1971)
and a number of forms for ‘thatch’ in non-Austronesian languages in the Huon Peninsula that look as if
they may be borrowings of reflexes of *sa(IJ)gu. These are sąq (Kâte, Kosorong, Kube), sąmun (Nabak,
Sialum), and ham (Selepет) ‘pandanus’ and sojor (Kâte) ‘thatch (made of split sago fronds)’
(McElhanon, pers. comm.). Pandanus nuts are a major Selepet food and are traded by them from the
lowlands into the neighbouring highlands. The origin of Tok Pisin saksak is unknown but the word was
most probably borrowed from Ambonese or other Indonesian labourers brought to Papua New Guinea in
the nineteenth century.

² The following form in Fijian looks as if it could be a reflex of PMP *sa(IJ)gu but cannot be as the g in
it derives from PAN *ŋ: soga ‘Metroxylon vitiense (whose leaves are used for thatch)’. This palm only
grows in one area of southern Viti Levu and its use for thatching is said to have been introduced by Solomon Islander labourers in the last century (Geraghty, pers.comm.).

(3) *qatep

<table>
<thead>
<tr>
<th>Area</th>
<th>Form</th>
<th>Meaning</th>
<th>Lg/Dialect</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOR</td>
<td>No known reflexes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMP</td>
<td>*qatap</td>
<td>roof, thatch</td>
<td>Proto Philippine</td>
<td>Sneddon (1984:63)</td>
</tr>
<tr>
<td></td>
<td>atip</td>
<td>thatch</td>
<td>Tagalog</td>
<td>English (1965)</td>
</tr>
<tr>
<td></td>
<td>atop</td>
<td>roof</td>
<td>Tagalog</td>
<td>Tryon (ed. 1994:7.510)</td>
</tr>
<tr>
<td></td>
<td>atepe</td>
<td>thatch</td>
<td>Bontok¹</td>
<td>Reid (1976)</td>
</tr>
<tr>
<td></td>
<td>atepe</td>
<td>roof</td>
<td>Manobo</td>
<td>Elkins (1968)</td>
</tr>
<tr>
<td></td>
<td>atepe</td>
<td>roof</td>
<td>Yami</td>
<td>Tryon (ed. 1994:07.510)</td>
</tr>
<tr>
<td></td>
<td>atape</td>
<td>thatch</td>
<td>Malay</td>
<td>Wilkinson (1932)</td>
</tr>
<tr>
<td></td>
<td>hatap</td>
<td>thatch</td>
<td>Bakumpai (=Ngaju Dayak)</td>
<td>Kawi (1985)</td>
</tr>
<tr>
<td></td>
<td>atap</td>
<td>roof</td>
<td>Isneg</td>
<td>Tryon (ed. 1994:07.510)</td>
</tr>
<tr>
<td></td>
<td>otap</td>
<td>roof</td>
<td>Kalinga</td>
<td>Tryon (ed. 1994:07.510)</td>
</tr>
<tr>
<td></td>
<td>taap²</td>
<td>roof, thatch</td>
<td>Kadazan (N.Borneo)</td>
<td>Antonissen (1958)</td>
</tr>
<tr>
<td></td>
<td>atap²</td>
<td>roof, thatch</td>
<td>Tidung Dayak</td>
<td>van Genderen Stort (1916)</td>
</tr>
<tr>
<td></td>
<td>*atup</td>
<td>roof, thatch</td>
<td>Proto Sangir</td>
<td>Sneddon (1984)</td>
</tr>
<tr>
<td></td>
<td>*qata’</td>
<td>thatch</td>
<td>Proto Central</td>
<td>Collins (1983)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maluku</td>
<td></td>
</tr>
</tbody>
</table>

¹ All 43 minor Philippine languages have reflexes of WMP *qatap (Reid 1971:124).
² It is not clear if this is a true reflex or not because no information is available about the sound correspondences involved.

| OC   | *qatop | thatch | Proto Oceanic | Grace (1969) |
|      | *qato  | thatch | Proto Eastern Oceanic | Cashmore (1969) |
| (WOC) kooto¹ | sago leaf thatch | Mbula | Tryon (ed. 1994:07.520) |
|      | atob   | thatch (with sago leaves) | Ubir | Money (1907) |
|      | atob   | thatch of sewn sago leaves | Arifama-Miniafia | Wakefield (pers.comm.) |
|      | atoa   | thatch | Dobu | Young (pers.comm.) |
|      | atova  | thatch | Kalauna | Young (pers.comm.) |
|      | a*tip, etep | to thatch by doubling grass back | Tolai | Lanyon-Orgill (1960) |
|      | eép    | Haus decken (= thatch) | Tolai | Meyer (1927) |
ni-etep  thatch  Tolai  Tryon (ed. 1994:07.520)

(SES)
ato  sago palm  Tolo  Crowley (1986)
s-ao  sago palm, sago thatch, sago flour  Lau  Fox (1974)
th-ao  sago palm  Toambaita  Keesing (pers.comm.)
l-ao  sago palm, sago starch  Kwaio  Keesing (1975)
amba s-ao  *Metroxylon* spp.  ‘Are’are  Hancock & Henderson (1988)
r-ão  sago palm, thatch  ‘Are’are  Geerts (1970)
s-ao  sago starch  Sa’a  Ivens (1929)
ao  sago palm, thatch  Arosi  Fox (1978)

(CP)
ato  thatch  Tokelauan  Simona (1986)
‘ato  thatch, roof  Tongan  Churchward (1959)
Tryon (ed. 1994:07.510)
ato  to thatch  Samoan  Milner (1966)
ato  thatch  Tuvaluan (Ellice Is)  Ranby (1980)

1 The neighbouring non-Austronesian language Kovai has at for ‘thatch’ (Bugenhagen, pers.comm.) but this is clearly a borrowing from some Austronesian language.
2 There are a number of forms in other Solomon Islands languages for ‘thatch, roof’ which appear to be reflexes of this etymon but which are not of the expected form, e.g. tago (S.Ambrym), togor (N.Ambrym), taxui (S.E.Ambrym), raho (Arosi, Sa’a).

3. FORMAL ASPECTS OF THE COGNATE SETS

(1) As noted in the sets above none of these items has any known reflexes in Formosan languages. Consequently they cannot be reconstructed to the level of Proto Austronesian. Instead the highest level to which they can be attributed is Proto Malayo-Polynesian, as all have reflexes in more than one subgroup of Malayo-Polynesian languages.

(2) There is some unexplained variation in the quality of vowels in these sets. However, given present resources this variation must remain unexplained for the time being except for that in the *rumbia* set.

Dempwolff reconstructed PMP *rumbia* for ‘sago palm’ on the basis of Toba Batak and Malay *rumbia*, Ngaju Dayak *hambie*, Malagasy *rufia* ‘sago palm’ and Samoan *pia*

11 There is a further problem which is not addressed in this paper and that is the *r > R* change implied in Blust’s doublet. The problem is in fact larger than this as the reconstructability of PMP *r* has been questioned by many scholars. In addition, Wolff, in his paper in this volume, suggests that such irregularities in plant names reflexes are evidence of repeated borrowing.
Since then Blust (1989a: Item 505) has reconstructed *Rambia (with doublet13 *rumbia) 'sago palm' for PMP based on Ngaju Dayak hambie and Motu rabia 'sago palm' as witnesses, and Ross (1988:159) *rabia 'sago' for POC. These supercede earlier proposals by Chowning(1963) and Grace (1969) for Proto Melanesian and Proto Eastern-Oceanic respectively.14

Thus while there is considerable agreement between different investigators about the form and meaning of this item at PMP and POC levels there is some disagreement about the quality of the vowel in the first syllable at PMP level. Dempwolff reconstructs *u and Blust both *a and *u. However, strictly speaking Dempwolff’s reconstruction cannot be attributed to PMP as it is based solely on WMP witnesses and an erroneous PN witness (that is, a witness that is now regarded as reflecting a different etymon, PAN *biRa(q) ‘semen’ (Blust 1970:Item 58)).15 Blust’s on the other hand is based on witnesses from geographically widely separated subgroups of PAN, one in WMP (in fact the same as quoted by Dempwolff) and one in Oceanic. Yet given that Blust reconstructs a doublet here the question arises as to the relationship between these proposals. Specifically:

(a) do the members of the proposed doublet represent variants of one form?
(b) if so, what are their histories?
(c) if not, how do we account for the doublet?

There are two pieces of evidence that have a bearing on these questions. One is the distribution of forms across languages and subgroups and the other phonological tendencies of WMP languages. Let us begin with the former.

It can be seen from the above cognate set that, except for Ngaju Dayak,16 cognates reflecting a *u vowel are distributed throughout WMP and CMP, those of an *a vowel elsewhere, and in particular throughout POC. That is, the two sets are in complementary distribution. That in turn suggests that the two subsets are variants of one form and not contrasting, as is suggested by the doublet designation. It further suggests that one or the other vowel reflex is an innovation, that is, either PMP *u > a or PMP *a > u in the relevant languages. If the latter is the case at least two independent changes would have to be postulated to account for the observed distribution of u-vowels in WMP and CMP languages – one at each level of PWMP and PCMP. In that case, however, the Ngaju Dayak form poses a problem – it cannot be explained as a retention of the change *a > u at PWMP level. If on the other hand PMP *u > a such a change would have had to have occurred at some point before POC diversified into its daughter languages, either as an innovation within POC

Dempwolff was in error in connecting this with *rumbia even though the semantics look good.

13 Blust (1970:112) defines ‘doublet’ in the following terms: “Where two or more variants...[are] found to be independently reconstructible, doublets...[are] postied for the protolanguage”.

14 Chowning’s (1963:4) reconstruction was *labia ‘sago palm (Metroxylon rumphii) and Grace’s (1969) *trumpia and *trumpia ‘sago’, although Grace was uncertain as to which was the ‘correct’ form of the two (as evidenced by his use of question marks in the listing of each). His reconstructions were in his words (p.42) “based on data in Capell (1943) but more or less different from the regular Proto Oceanic reflexes of the Proto Austronesian form cited there”.

15 Further comparative work is needed on this item as two or more distinct cognate sets appear to have been confused under it hitherto.

16 There are two other possible exceptions not listed in the above set – dombia ‘sago palm’ in Selepet (McElhanon, pers.comm.) and dumia ‘swamp’ in Kilivila (Tryon, ed. 1994:01.380). The former most probably derives from POC *trabia – POC *a > o in Sio, an Austronesian language of the area (Ross, pers.comm.). If so it is a borrowing from some Oceanic Austronesian language. The Kilivila form on
itself or as a borrowing that had been absorbed into POC before diversification.\(^{17}\) In either case the Ngaju Dayak form has to be explained as a local innovation.

In terms of the greater simplicity of these two possibilities the \(*u > a\) scenario is the more likely. It is even more likely when the following phonological evidence is taken into account:

(a) there is considerable recorded variation in the form of the vowel in the first syllable of \(rumbia\)-type words in WMP languages. Thus consider:

(i) both \(u\) and \(a\) variants are given for the same language/dialects in De Clercq’s lists.

<table>
<thead>
<tr>
<th>Area</th>
<th>Form</th>
<th>Meaning</th>
<th>Lg/Dialect</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMP</td>
<td>hoembiasangi</td>
<td>Metroxylon sp.</td>
<td>Minangkabau</td>
<td>De Clercq (1927:Item 2676)</td>
</tr>
<tr>
<td></td>
<td>hambije</td>
<td>Metroxylon sp.</td>
<td>(Ngaju) Dayak(^1)</td>
<td>De Clercq (1927:Item 2676)</td>
</tr>
<tr>
<td></td>
<td>lœmbija</td>
<td>Metroxylon sp.</td>
<td>(Tidung) Dayak(^1)</td>
<td>De Clercq (1927:Item 2676)</td>
</tr>
<tr>
<td></td>
<td>labia</td>
<td>Metroxylon sp.</td>
<td>Toradja</td>
<td>De Clercq (1927:Item 2676)</td>
</tr>
<tr>
<td></td>
<td>poëöerombia</td>
<td>Metroxylon sp.</td>
<td>Toradja</td>
<td>De Clercq (1927:Item 2676)</td>
</tr>
<tr>
<td></td>
<td>rembieu</td>
<td>Metroxylon sp.</td>
<td>Gajo</td>
<td>De Clercq (1927:Item 2676)</td>
</tr>
<tr>
<td></td>
<td>roëmbieu</td>
<td>Metroxylon sp.</td>
<td>Gajo</td>
<td>De Clercq (1927:Item 2676)</td>
</tr>
</tbody>
</table>

\(^{1}\) De Clercq does not distinguish between these but it is clear from what is now known about the languages that the first refers to Ngaju Dayak and the second to Tidung Dayak.

(ii) intermediate forms written with \(i\) and \(e\) occur in the same or related languages, for example, Malay \(rumbija\), \(rembi\), \(rembiaw\), \(rembië\), \(rambiya\). Thus Wolff (1974:83), referring to \(*rumbiya\) ‘sago palm’, when arguing against PAN \(*rumbiya\) as evidence for the retention of PAN \(*r\), notes that although the plant is well known in certain areas:

...in much of Indonesia and the Philippines, it is only found sporadically, and forms referring to this plant show numerous doublets and analogical reformations. (In Malay it is known as \(rambilya\), but also alternatively as \(gombiya\) and \(rumbiya\).)

(iii) \(i\) and \(u\) are given as reflexes of PAN \(*u\) by at least one scholar working on reconstructing the historical phonology of a subgroup of Indonesian languages. Thus Collins (1983:111) gives \(ripia\) in Sepa and \(lupia\) in Tamilou for ‘sago’ as reflexes of PAN \(*rambilia\) ‘sago’.\(^{18}\)

\(^{17}\) Unfortunately it is not possible to decide in any non-arbitrary way between these two possibilities.

\(^{18}\) Collins’s \(*r\) is apparently meant to be \(*R\) because he is supposedly illustrating “the treatment of \(*R\) in Sepa-Teluti” (p.111). Moreover, Sneddon (1984:83) reconstructs \(*Rumbia\) for Proto-Sangric with an \(*R\).
(b) Ngaju Dayak in particular (as do many other WMP languages including Malay) tends to reflect $u$ in the antepenultimate syllable of PMP protoforms as $a$. Consider, for example, the following sample taken from Dempwolff (1938) besides the *rumbia example already given:

*bubuŋ 'roof ridge' 
*bukiliŋ 'round and round'
*t'u/ambi 'annexe or extension on house' 

> NGD bābuŋ/-an 'roof ridge'
> NGD kāliliŋ 'round and round'
> NGD sārambi 'annexe or extension on house'

Thus distributional and phonological evidence points to an hypothesis that the original form of PMP *r(u,a)mbia most probably was *rumbia which became hambia in Ngaju Dayak for internal phonological reasons and *rabia in POC (either through innovation in POC itself or by borrowing from some other language in which the same change had occurred) and was spread in that form as POC diversified in the Pacific.

4. SEMANTIC ASPECTS OF THE COGNATE SETS

The following meanings are represented in the cognate sets given:

(1) sago palm (*Metroxylon* sp., *Arenga* sp.)(hereafter symbolised SP)
(2) sago starch (hereafter symbolised SS)
(3) thatch (hereafter symbolised TH)
(4) roof (hereafter symbolised RO)

All known candidates for the above meanings are also given in the cognate sets. By arranging the evidence in an 'inclusion diagram' of the kind used by Dyen and Aberle (1974) we arrive at the display shown in the Table in which 1 = reflex of *rumbia, 2 = reflex of *sa(lJ)gu and 3 = reflex of *qatep.

<table>
<thead>
<tr>
<th>Subgroup Language</th>
<th>SP</th>
<th>SS</th>
<th>TH</th>
<th>RO</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMP</td>
<td>1,2</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

19 In fact it tends to neutralise all vowels in this position (Adelaar, pers.comm.).
20 In drawing up this table I have adopted the following conventions:

(a) All borrowings were omitted.
(b) In some cases it is not clear if SS or SP is meant where the meaning is given simply as 'sago'. In these cases they were counted as SS. In addition verbs were counted as nouns corresponding to the kind of activity being referred to, for example:

sakul make sago (Manobo) > SS
atip thatch by doubling grass back (Tolai) > TH
manaku cook sago till hard (Kadazan) > SS
rumbia scoop sago out of its trunk (Malay) > SS

(c) Meanings with only one or two members in one subgroup were excluded as not being members of any candidate and therefore of no significance at this level (e.g. leaves, mat, spoon, juice, make torch, corn/maize, white of egg).
<table>
<thead>
<tr>
<th>ISN</th>
<th>MBO</th>
<th>2</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAG</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BAG</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>SUL</td>
<td>1</td>
<td></td>
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<tr>
<td>CEB</td>
<td>1</td>
<td>2</td>
<td></td>
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<tr>
<td>YAM</td>
<td>3</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>JAV</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAL</td>
<td>1</td>
<td>1,2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MAL(A)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KAD</td>
<td>1,2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TID</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IND</td>
<td>1,2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TBB</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIN</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>NGD</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BAK</td>
<td>1</td>
<td>3</td>
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</tr>
<tr>
<td>HOV</td>
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<tr>
<td>GOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAN</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CMP**

| RTI | BUR | 4 | TET | 1 |

**SHWNG**

**WAR**

**OC**

<table>
<thead>
<tr>
<th>ADM</th>
<th>1</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MBU</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAB</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>IWA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DBU</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>KAL</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMA</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>IAM</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>MIS</td>
<td>1</td>
<td>1</td>
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<tr>
<td>IDU</td>
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<tr>
<td>MUY</td>
<td>1</td>
<td>1</td>
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</tr>
<tr>
<td>UBI</td>
<td>1</td>
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<td>3</td>
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<tr>
<td>ARI</td>
<td>1</td>
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<tr>
<td>KLA</td>
<td>1</td>
<td>1</td>
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<tr>
<td>MTU</td>
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<tr>
<td>TAW</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUD</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
An analysis of this diagram shows that none of these candidates can be reconstructed for PAN; they can only be reconstructed at the level of PMP and on that level the following observations about candidature and inclusion can be made:

1) For SP: the candidates are 1 (WMP, CMP, OC) and 2 (WMP, OC). Both of these are unincluded. The inference is that both meant SP.

2) For SS: the candidates are 1 (WMP, CMP, OC) and 2 (WMP, OC). Both of these are unincluded. The inference is that both meant SS.

3) For TH: the only candidate is 3 (WMP, CMP, OC) which is unincluded. This implies that 3 meant TH.

4) For RO: the only candidate is 3 (WMP, OC) which is included in 3 of TH.

The method of lexical reconstruction thus gives the following PMP etyma:

1 *rumbia  sago palm, sago starch
2 *sa(l)gu  sago palm, sago starch
3 *gatep  thatch

However, given that *rumbia and *sa(l)gu are both inferred to have meant ‘sago palm’ and ‘sago starch’ some further discussion of these semantic reconstructions is required. Although it is not impossible for two lexical items to have exactly (or nearly so) the same range of meaning in a protolanguage, it is highly unlikely, just as it is in contemporary languages. Where it does happen in contemporary languages the range of meanings covered by the items in question is not usually exactly the same. Consider, for example, such pairs as big : large, speak : talk, street : road. Consequently the fact that *rumbia and *sa(l)gu are inferred by the method of lexical reconstruction used above to have had the same meaning is suspicious. This suspicion is increased if we note that reflexes of these items are in contrast semantically in many WMP languages (see Table 1), or, where this is not so reflexes of
*sa(n)gu have often come to refer to the starch of other plants while those of *rumbia have not, except in two isolated cases.

An hypothesis which proposes that *rumbia meant ‘sago palm’ in the protolanguage and *sa(n)gu ‘sago starch’ would not only account for these facts economically but would also fit well with another well-known observation, notably that POC languages in particular have collapsed many existing contrasts in WMP languages thus providing innovations which are used to define POC as a high-order subgroup of PAN.

If such an hypothesis is accepted the other semantic reflexes noted can be explained as common types of shifts triggered by user-perceived similarities in the form or function of the relevant items. Thus, for example, if *rumbia meant ‘sago palm’ it most probably referred to *Metroxylon sangu (or rumphii) in particular as this was the most widespread sago-producing sago palm type. However, where this palm does not occur or where other palms have come to assume more importance for some reason, reflexes of this are applied to other palms such as *Arenga spp. Elsewhere reflexes have come to designate other plants such as *Colocasia spp., *Taccapinnatifida and *Manihot esculenta from which a starchy food can be made, even if this is only seen as fit for pigs in some instances as is reported to be the case in Tae’. By extension the words for these plants come to be applied to the starch produced by them in accord with the common practice of present-day Austronesian populations who name the edible products of plants after the plant itself, as, for example, *niu ‘coconut’ which refers to the nut as well as to the palm on which it grows. In some cases reflexes of this protoform have come to be applied to ‘thatch’ where the fronds of the palm have been used as roofing material. In all cases, however, the different meanings can be most simply explained as derived from an original meaning of ‘sago palm’.

Finally, there is the question of the gloss for *qatep. As presently reconstructed it is very general, giving no indication of type of material used. In so far as the present linguistic evidence is illuminating at all it suggests that ‘sago leaves’ is the most likely material. Thus in the few cases where the glosses given for reflexes of this item are specific ‘sago’ is mentioned. Consequently the reconstructed gloss for *qatep should most probably be ‘sago thatch’.

I thus propose the following as the proto-meanings of the cognate sets discussed:

1 *rumbia sago palm
2 *sa(n)gu sago starch
3 *qatep sago thatch

It is to be noted that the proto-meanings arrived at using the above method are very similar to those suggested by Dempwolff despite the more limited materials available to him and his appeal to some erroneous witnesses.

5. CONCLUSION

In this paper I have examined three cognate sets to do with sago and other foodstuffs and have reached the following conclusions:

(1) The highest level to which the reconstructions can be attributed on present evidence is PMP.

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21 Thus it is reported by Ruddle et al. (1973: 42) that in Melanesia at least 300,000 people rely on it as their main energy food and some one million consume it regularly in their diet.
(2) Variation in the form and distribution of *u* versus *a* vowels in the first syllable of cognates of the *rumbia* set can most economically be explained by the reconstruction of a *u* vowel in this position in the protoform. That is, POC *rabia* is seen as a distributional variant resulting from an innovation at POC level or from borrowing at that level.

(3) The proto-meanings of the etyma discussed are ‘sago palm’ for *rumbia*, ‘sago starch’ for *sa(IJ)gu* and ‘sago thatch’ for *qatep*.

These results in turn have culture-historical implications:

(1) It is clear from the existence and distribution of cognates for *rumbia* and *sa(IJ)gu* that (a) PMP speakers were sago-eaters, and that (b) sago must have been very important to the expansion of early Austronesian speakers, in fact, probably much more important than has hitherto been recognised.\(^{22}\)

Ruddle et al. (1978:83) warn that “one cannot assume that either an economy which appears primitive or a food plant which is as important as sago is necessarily ancient”. However, the linguistic evidence makes it clear that sago culture must be at least as old as PMP. This conclusion is supported also by the range of attitudes to sago as a foodstuff. In many areas sago is still a staple, in many others it is seen as an emergency food only to be called upon when other foods are not available or for special ceremonial purposes (Ruddle et al. 1978:42-69).\(^{23}\) Although it is not possible at this stage to argue the point it seems highly likely that the devaluation of sago as a foodstuff where it has occurred or its relegation to special ceremonial status in others is most probably related to the spread of other starch staples such as rice, sweet potato and arrowroot across the Austronesian world. This would imply, however, that these changes are not very old in the Pacific as both the latter two foodstuffs are said to be post-Magellan introductions.

(2) A surprising feature of the cognate sets discussed in this paper is that none have known cognates in Formosan languages even though one of the sago-producing varieties, a species of *Arenga*, is (or was) reportedly found on Taiwan – see map. However, as Ruddle et al. (p.9) point out “the [reported or potential] presence of a palm in a particular area does not necessarily imply the presence of palm starch extraction. More difficult is the problem of depicting the distribution of other reportedly exploited genera...[such as] *Phoenix*”.\(^{24}\)

(3) No widespread cognate sets were found for items that can be clearly associated with sago-using cultures (although it has to be admitted searching for them was not a primary aim of this study). That is, no sets of terms were found that can be reconstructed at a high level for such things as instruments and methods used in producing sago starch (e.g. words for to

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\(^{22}\) Bellwood (1990:3) comes close to giving due recognition to the importance of sago in the expansion of Austronesian languages when he notes that “predilections for special environments such as swamplands for rice and taro or good fishing lagoons” was one reason (amongst others) for the success of Austronesian colonisations. One explanation for the lack of recognition of the importance of sago to this process is probably that the technology associated with sago production is non-distinctive and leaves no archaeological record.

\(^{23}\) I also have many specific cases noted for Austronesian communities in Papua New Guinea.

\(^{24}\) Another reason may well be, as Peter Matthews (Department of Prehistory, The Research School of Pacific and Asian Studies, The Australian National University) points out (pers.comm.), that there may be other starchy plants native to Taiwan to which the sought-for reflexes refer. Thus species of *Alocasia* and *Cycas* are widely distributed throughout Asia and the Pacific and both are starch producing. *Cycas* spp. have starch stems that are processed in a similar way to sago and techniques used for extracting starch from *Alocasia* spp. may be essentially the same (Johns & Kubo 1988). The question obviously needs further investigation.
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felled a sago tree, axe/adze/pounder, trough, settling basket). This is particularly striking given that “the techniques and implements used to extract sago are remarkably similar throughout the tropics, despite variations in detail” (Ruddle et al. 1978:11). What one finds instead is a relatively large collection of small cognate sets that are very local in distribution. The reason for this appears to be that the methods of felling sago palms and the instruments used in extracting the sago are not specialised and therefore do not persist through time. Thus an axe or adze is an axe or adze and may be used for different purposes. There is also the problem of course that other terms which may have been associated with the three etyma discussed in this paper in the cultural context (e.g. cultivated (= garden) versus uncultivated land, cut-peel-scrape-skin, ripe-mature-overripe, dig-till, sucker-young shoot-sprout, flower-blossom) are of such a general character that it is not possible to associate them solely with the items studied here. Similarly gardening and fencing are evidently not associated with sago because sago is not enclosed or tended like other crops even if it is often planted. The reason for this is presumably that the palms are native to the area and are self-protecting with a hard outer rind and, for some species, needle sharp spines.

(4) It has already been pointed out that in many areas sago is an important emergency food that communities fall back on when their normal foodstuffs are in short supply or unavailable. In that case the starch may be produced locally, or if unavailable there obtained by trading.

One of the most famous, if not the most famous, trading networks based on sago was that of the hiri in the Port Moresby area of Papua New Guinea. This was an annual trading cycle in which the Motu, the traditional Austronesian inhabitants of that area, sailed large multihulled canoes to the Gulf of Papua to exchange locally-made clay pots and other cultural items for sago, canoe logs and other minor Gulf products (Dutton 1982). For a long time it has been accepted, on the word of the Motu themselves, that this trade was basically motivated by periodic shortages of food in the Port Moresby area (Oram 1982). Some years ago, however, this view was challenged by Allen (1977a, 1977b) who suggested that this was too simplistic a view. The Motu, Allen (1977b:43) claims, were successful entrepreneurs who (amongst other things) “were able to achieve highly complex and successful levels of resource utilisation by a variety of adaptive technologies and social manoeuvres” which included “formalised exchange systems”.

In so far as the linguistic evidence can contribute to this debate the following two points are relevant:

(a) The Motu, whenever and wherever they came from, retained the POC-derived word rabia (< PMP *rumbia) for sago. They would not have done so if sago had not remained part of their diet. That it did so probably stems from the fact that in the first instance, and contrary to what one might suspect if one were looking at the Port Moresby landscape today, sago once grew, albeit in very limited supply, in parts of the Port Moresby area.26

25 Chowning (1991:51), however, records Kove walu, Lakalai ualu, and Molima e’wanu ‘sago beater’ suggesting PWO *(e)walu. She also suggests that POC *(k,q)ota may have referred to sago pith on the basis of Kove kota ‘sago pith left after starch is extracted’, Fijian kota ‘coconut meat grated and wrung out’, and PPN *qota ‘dregs, rubbish’.

26 Thus, for example, Lindt (1887:50) refers to “a few natives engaged in extracting...sago from the trunk of the Rabia palm” while travelling up Akibaka Creek off Aroa River to the west of Port Moresby; Chalmers and Wyatt Gill (1885:266) refer to a “fine sago palm” between Port Moresby and the Laloki River; Oram (pers.comm.) has recorded that sago palms once grew at Ranubada outside the entrance to Taurama Barracks and in Eastern Motu territory in the swamps beside the Rigo road; and I myself saw...
(b) According to replies to a survey question about attitudes of present-day Austronesian populations in Papua to sago as a foodstuff, circulated by me, the common (non-Motu) response was that it was regarded as a famine or supplementary food. This fits very well with the Motu explanation for the *raison d’être* of the *hiri*.

Both points taken together would seem to suggest, therefore, and irrespective of whatever other values the *hiri* trade may have developed subsequently or was developing when Europeans arrived as Allen claims, that the *hiri* was first and foremost economically driven — the Motu never lost contact with sago as a foodstuff and found ways to tap the vast resources of it in the Gulf. In doing so they showed remarkable ingenuity, energy and political skill which enabled them to survive in a relatively poorly endowed physical environment.

**APPENDIX 1: REFLEXES OF RELEVANT PMP CONSONANTS IN A SELECTION OF LANGUAGES REFERRED TO IN THIS PAPER**

<table>
<thead>
<tr>
<th>PMP</th>
<th><em>p-</em></th>
<th><em>t-</em></th>
<th><em>b-</em></th>
<th><em>(m)b-</em></th>
<th><em>(g)g-</em></th>
<th><em>r-</em></th>
<th><em>R-</em></th>
<th><em>s-</em></th>
<th><em>q-</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>POC(P)</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>b-</em></td>
<td><em>mp-</em></td>
<td><em>(g)g-</em></td>
<td><em>r-</em></td>
<td><em>R-</em></td>
<td><em>s-</em></td>
<td>Ø</td>
</tr>
<tr>
<td>POC(R)</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>b-</em></td>
<td><em>g-</em></td>
<td><em>r-</em></td>
<td><em>R-</em></td>
<td><em>s-</em></td>
<td>Ø</td>
<td></td>
</tr>
</tbody>
</table>

**WMP languages**

<table>
<thead>
<tr>
<th>PPH</th>
<th><em>p-</em></th>
<th><em>t-</em></th>
<th><em>b-</em></th>
<th><em>(m)b-</em></th>
<th><em>(g)g-</em></th>
<th><em>r-</em></th>
<th><em>R-</em></th>
<th><em>s-</em></th>
<th><em>q-</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>TAG</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>b-</em></td>
<td><em>(m)b-</em></td>
<td><em>(g)g-</em></td>
<td><em>l-</em></td>
<td><em>g-</em></td>
<td><em>s-</em></td>
<td><em>q-</em></td>
</tr>
<tr>
<td>HOV</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>b-</em></td>
<td><em>mbb-</em></td>
<td><em>k,b-</em></td>
<td><em>r-</em></td>
<td><em>z,Ø-</em></td>
<td><em>z,Ø-</em></td>
<td>*s--</td>
</tr>
<tr>
<td>MAL</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>b-</em></td>
<td><em>(m)b-</em></td>
<td><em>(g)g-</em></td>
<td><em>r-</em></td>
<td><em>r-</em></td>
<td><em>s-</em></td>
<td>Ø</td>
</tr>
<tr>
<td>NGD</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>b-</em></td>
<td><em>(m)b-</em></td>
<td><em>(g)g-</em></td>
<td><em>r-</em></td>
<td><em>h-</em></td>
<td><em>s-</em></td>
<td>Ø</td>
</tr>
<tr>
<td>TBB</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>b-</em></td>
<td><em>(m)b-</em></td>
<td><em>(g)g-</em></td>
<td><em>r-</em></td>
<td><em>r-</em></td>
<td><em>s-</em></td>
<td>Ø</td>
</tr>
</tbody>
</table>

**CMP languages**


**SHWNG languages**


**OC languages**

<table>
<thead>
<tr>
<th>POC(P)</th>
<th><em>p-</em></th>
<th><em>t-</em></th>
<th><em>p-</em></th>
<th><em>mp-</em></th>
<th><em>(g)g-</em></th>
<th><em>r-</em></th>
<th><em>R-</em></th>
<th><em>s-</em></th>
<th>Ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC(R)</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>p-</em></td>
<td><em>b-</em></td>
<td><em>(g)g-</em></td>
<td><em>r-</em></td>
<td><em>R-</em></td>
<td><em>s-</em></td>
<td>Ø</td>
</tr>
<tr>
<td>ADM</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>p-</em></td>
<td><em>b-</em></td>
<td><em>(g)g-</em></td>
<td><em>r-</em></td>
<td>Ø</td>
<td>*s--</td>
<td>*s--</td>
</tr>
<tr>
<td>LON</td>
<td><em>p-</em></td>
<td><em>t-</em></td>
<td><em>p-</em></td>
<td><em>p-</em></td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>*r-1</td>
<td>*y-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(SES)</th>
<th>*p,*v-3</th>
<th><em>t-</em></th>
<th>*p,<em>v-</em></th>
<th><em>b-</em></th>
<th><em>g-</em></th>
<th><em>r-</em></th>
<th><em>R-</em></th>
<th>*s-</th>
<th>Ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>KWO</td>
<td>*p,*v-*3</td>
<td><em>t-</em></td>
<td>*p,<em>v-</em></td>
<td><em>b-</em></td>
<td><em>g-</em></td>
<td><em>r-</em></td>
<td><em>R-</em></td>
<td>*s-</td>
<td>Ø</td>
</tr>
<tr>
<td>ARO</td>
<td>*p,*v-*3</td>
<td><em>t-</em></td>
<td>*p,<em>v-</em></td>
<td><em>b-</em></td>
<td><em>g-</em></td>
<td><em>r-</em></td>
<td><em>R-</em></td>
<td>*s-</td>
<td>Ø</td>
</tr>
<tr>
<td>PPT</td>
<td>*p,*v-*3</td>
<td><em>t-</em></td>
<td>*p,<em>v-</em></td>
<td><em>b-</em></td>
<td><em>g-</em></td>
<td><em>r-</em></td>
<td><em>R-</em></td>
<td>*s-</td>
<td>Ø</td>
</tr>
<tr>
<td>MUY</td>
<td>*p,*v-*3</td>
<td><em>t-</em></td>
<td>*p,<em>v-</em></td>
<td><em>b-</em></td>
<td><em>g-</em></td>
<td><em>r-</em></td>
<td><em>R-</em></td>
<td>*s-</td>
<td>Ø</td>
</tr>
<tr>
<td>PCP</td>
<td>*p,*v-*3</td>
<td><em>t-</em></td>
<td>*p,<em>v-</em></td>
<td><em>b-</em></td>
<td><em>g-</em></td>
<td><em>r-</em></td>
<td><em>R-</em></td>
<td>*s-</td>
<td>Ø</td>
</tr>
<tr>
<td>TOL</td>
<td>*p,*v-*3</td>
<td><em>t-</em></td>
<td>*p,<em>v-</em></td>
<td><em>b-</em></td>
<td><em>g-</em></td>
<td><em>r-</em></td>
<td><em>R-</em></td>
<td>*s-</td>
<td>Ø</td>
</tr>
</tbody>
</table>

Palms growing at different points along the same road and in the Rigo area in the late 1950s. I am indebted to Nigel Oram for providing the foregoing and other references to sago in the Central Province.
APPENDIX 2: REFLEXES OF RELEVANT PMP VOWELS IN A SELECTION OF LANGUAGES REFERRED TO IN THIS PAPER

<table>
<thead>
<tr>
<th>PMP</th>
<th>*a</th>
<th>*i</th>
<th>*e</th>
<th>*u</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPH</td>
<td>*a</td>
<td>*i</td>
<td>*e</td>
<td>*u</td>
</tr>
<tr>
<td>TAG</td>
<td>a</td>
<td>i</td>
<td>e</td>
<td>u</td>
</tr>
<tr>
<td>MAL</td>
<td>a</td>
<td>i,e</td>
<td>a,a/(C)#</td>
<td>u,o</td>
</tr>
<tr>
<td>TBB</td>
<td>a</td>
<td>i,e</td>
<td>o</td>
<td>u,o</td>
</tr>
<tr>
<td>NGD</td>
<td>a,-ä</td>
<td>i</td>
<td>e</td>
<td>u,o</td>
</tr>
<tr>
<td>HOV</td>
<td>a,-y</td>
<td>i</td>
<td>e,i/(C)#</td>
<td>u</td>
</tr>
<tr>
<td>POC(P)</td>
<td>*a</td>
<td>*i</td>
<td>*o</td>
<td>*u</td>
</tr>
<tr>
<td>POC(R)</td>
<td>*a</td>
<td>*i</td>
<td>*o</td>
<td>*u</td>
</tr>
</tbody>
</table>

In Oceanic languages these vowels are reflected regularly with the same values except that schwa is reflected as o and in some languages the quality of the reflex vowel may be affected by following high vowels (e.g. in Sa’a POC *a > e and in Rotuma POC *a(C)e > æ, POC *a(C)u > o(C), *A(C)i > ä, *e(C)u > o, *u(C)i > u).

APPENDIX 3: REFLEXES OF *mēnak ‘FAT’

<table>
<thead>
<tr>
<th>Area</th>
<th>Form</th>
<th>Meaning</th>
<th>Lg/Dialect</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOR</td>
<td></td>
<td>No known reflexes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMP</td>
<td>mantika</td>
<td>lard</td>
<td>Tagalog</td>
<td>English (1965)</td>
</tr>
<tr>
<td></td>
<td>minyak</td>
<td>fat</td>
<td>Malay</td>
<td>Wilkinson (1932)</td>
</tr>
<tr>
<td></td>
<td>menaka¹</td>
<td>fat, grease</td>
<td>Malay</td>
<td>Tryon (ed. 1994:05.791)</td>
</tr>
<tr>
<td></td>
<td>miak</td>
<td>oil, fat</td>
<td>Toba Batak</td>
<td>Warneck (1977)</td>
</tr>
<tr>
<td></td>
<td>miñak</td>
<td>fat</td>
<td>Bahasa Indonesia</td>
<td>Matsay (pers.comm.)</td>
</tr>
<tr>
<td>CMP</td>
<td>mina-k</td>
<td>fat, grease</td>
<td>Roti</td>
<td>Tryon (ed. 1994:05.791)</td>
</tr>
<tr>
<td></td>
<td>mina-n</td>
<td>fat</td>
<td>Buru</td>
<td>Tryon (ed. 1994:05.791)</td>
</tr>
<tr>
<td>OC</td>
<td>meene</td>
<td>sago palm, starch</td>
<td>Mbula</td>
<td>Bugenhagen (pers.comm.)</td>
</tr>
<tr>
<td></td>
<td>momona</td>
<td>semen</td>
<td>Kilivila</td>
<td>Senft (1986)</td>
</tr>
<tr>
<td></td>
<td>momola</td>
<td>fat</td>
<td>Kilivila</td>
<td>Senft (1986)</td>
</tr>
<tr>
<td></td>
<td>monamona</td>
<td>fat</td>
<td>Tawala</td>
<td>Ezard (pers.comm.)</td>
</tr>
</tbody>
</table>
### (CEOC)

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
<th>Language</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>monoi</td>
<td>fett, feist sein</td>
<td>Tolai</td>
<td>Meyer (1927)</td>
</tr>
<tr>
<td>mangoni,</td>
<td>fat</td>
<td>Sa’a</td>
<td>Ivens (1929)</td>
</tr>
<tr>
<td>mwomwona</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>momona</td>
<td>fat</td>
<td>‘Are’are</td>
<td>Geerts (1970)</td>
</tr>
<tr>
<td>monana</td>
<td>liquid fat</td>
<td>Tolo</td>
<td>Crowley (1986)</td>
</tr>
</tbody>
</table>

### (CP)

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
<th>Language</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>momona</td>
<td>fat</td>
<td>Tuvaluan (Ellice Is)</td>
<td>Ranby (1980)</td>
</tr>
<tr>
<td>momona</td>
<td>fat (of shellfish)</td>
<td>Tongan</td>
<td>Churchward (1959)</td>
</tr>
</tbody>
</table>

1. Noted in footnote as being derived from PMP *mi(n)ak.*
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1. INTRODUCTION

My concern in this paper is with the interpretation of a set of kinship terms attributed to Proto Malayo-Polynesian. Since the languages that comprise the subgroup of Malayo-Polynesian, from which evidence of the protolanguage is derived, are overwhelmingly characterised by a generational structure, my specific focus for the purposes of this paper will be confined to the kinship terms of Ego's generation. My concern does not focus on any single lexeme but rather on the set of lexemes whose semantic interrelations are presumed to constitute a coherent group defining some particular form of social organisation. It is therefore not the lexemes themselves but their possible semantic interrelation and the kind of organisation implied by these lexemes that are at issue.

The question that I want to raise is one of indeterminacy or, at least, of methodological uncertainty: how do we establish the semantics of Proto Malayo-Polynesian (PMP) kinship given the remarkable diversity of the terminological systems that have been developed by different Malayo-Polynesian-speaking populations on the basis of relatively similar sets of terms?

This question can also be viewed from another perspective. Evidence for the inclusion of any particular lexeme in a proposed PMP kinship terminology is derived singly, yet these etyma must make sense collectively to constitute a system of classification. What, therefore, if there were more than one plausible semantic interpretation of exactly the same set of etyma, with each interpretation reflecting a recognisable variant of a Malayo-Polynesian kin classification system? The issue would then become one of determining probable solutions among possible systems.

It may well be possible to arrive at a protolanguage construction for the Malayo-Polynesian kinship terminology, but to do so one must take into account the complexity of the task at hand. For this, there can be no short cuts or simple solutions.

In this paper, I want to look at eight lexemes reconstructed for Ego's generation in the Proto Malayo-Polynesian kinship terminology. To provide some indication of the variety of possibilities for the semantic interpretation of these lexemes, I want to examine the kin terms for Ego's generation in a number of different contemporary Malayo-Polynesian societies, all
of which share a significant number of reflexes of the PMP set. My examination of these systems is intended to illustrate some of the forms of variation that occur among contemporary Malayo-Polynesian societies. Although a few such systems cannot give an adequate idea of the range of this variation, these examples do provide enough possibilities to allow me to venture two alternative and equally coherent semantic reconstructions for the eight PMP lexemes of Ego’s generation. In my conclusion, I point to the features that may most readily transform one alternative to the other. This, in turn, raises the question of the development of the most general features of Malayo-Polynesian kinship classification.

2. KINSHIP TERMINOLOGIES AS OBJECTS OF STUDY

From an analytic point of view, it is often difficult to determine what should or should not be considered a ‘kinship’ term. Kinship is a rich field of social discourse and the terms used in this discourse invariably include alternative forms, terms of politeness, vocatives, as well as ‘metaphoric’ terms that are not confined exclusively to the field of kinship discourse. Often consideration of such ‘metaphoric’ terms provide revealing cultural insights.²

From the outset, the process of analysis ‘frames’ its object. By our frame of analysis, we elicit, select, and thereby delimit a field of cultural discourse; and, then, to this field of discourse we direct particular interrogations. The questions we pose are those of coherence, intelligibility, and, in the case of relationship terminologies, the question of possible social function.

Lewis Henry Morgan, who initiated the formal study of relationship terminologies in his massive work, ‘Systems of consanguinity and affinity of the human family’ (1870), also established the chief conventions and underlying assumptions that continue to shape current analysis. By enshrining as critical a concept of ‘descent’ and by analytically distinguishing ‘consanguinity’ from ‘affinity’, Morgan claimed to have fashioned a scientific framework for the study of kinship. This framework, however, was based on well-established British and European legal categories.³ As a construct reflecting Western assumptions, this framework has proved particularly intractable for the study of Malayo-Polynesian systems of kinship.

Given his analytical assumptions, Morgan, on the basis of his study of Hawaiian kinship – particularly the terms of Ego’s generation – could only arrive at the scandalous conclusion that these terms reflected a prior system of incestuous marriage. For this curious form of supposed social organisation, Morgan coined the term ‘punaluan’, and argued that this represented one of the earliest forms of human society.

Although simplistic in its initial formulation, Morgan’s research has bequeathed a legacy that continues to set the framework for the study of Malayo-Polynesian kinship and social organisation. The major criterion for the typology of Malayo-Polynesian societies remains

² An example of a cultural analysis that derives from asking the question ‘what is a kinship term?’ can be found in ‘Sister’s child as plant: metaphors in an idiom of consanguinity’ (Fox 1971). The fact that the Rotinese use a noun form (selek) of the verb ‘to plant’ as a term for the ‘sister’s child’ is indicative of a conceptual system that draws connections between humans and plants.

³ Morgan, who was himself a practising lawyer, was deeply influenced by the work of the great English jurist, William Blackstone, and in particular by two of Blackstone’s major treatises, An essay on collateral consanguinity (1750) and A treatise on the law of descents in fee-simple (1759). Morgan, for example, adapted Blackstone’s diagram of collateral consanguinity to represent various ‘systems’ of consanguinity.
that of ‘descent’. Thus there is a concern to distinguish, usually on the basis of kin terminology, those societies with undifferentiated descent (‘cognatic descent’) from those with a variety of forms of differentiated descent (‘patrilineal’, ‘matrilineal’, ‘bilineal’, ‘double unilineal’, ‘ambilineal’, etc.).

Cross-cutting this supposed divide between ‘differentiated’ and ‘undifferentiated’ descent, there exists a further concern to relate to one another those parts of the kinship terminology that have been analytically distinguished as either ‘consanguine’ or ‘affine’. Societies with prescribed or directed forms of marriage are seen to be of particular interest in regard to issues of consanguinity and affinity.

I have for some time argued against the pervasive legacy of Morgan’s paradigm and its use, in various contexts, to specify early forms of Malayo-Polynesian or Austronesian social organisation (Fox 1980a, 1988a, 1988b). As an alternative to ‘descent groups’, I have proposed the concept of ‘origin structures/groups’ which are as commonly found in societies without descent as they are in societies with descent; and I have argued for the importance of ‘precedence’ (rather than ‘hierarchy’) as an organising feature in relations among groups and individuals (Fox, forthcoming). I also pointed to the ‘house’ as a mediating social and ritual structure in Malayo-Polynesian societies (Fox 1980b, forthcoming). As the evidence accumulates on the variety and diversity of Malayo-Polynesian forms of social organisation, it is essential to proceed cautiously in analysing this marvellous complexity. The purpose of this paper is thus to raise a further caution about what we think we may know.

3. KINSHIP VARIATION: COMPLETENESS AND DETERMINACY

In the Austronesian-speaking world, no two kinship terminologies are the same. Variation is considerable. This variation has two dimensions. Terminologies may vary in the number of terms that are utilised. Thus some Austronesian societies define a relational universe with more or less ten basic terms while other societies require over forty terms to create their social world. In addition, many terminologies contain alternative forms for the same referent. These alternative forms may, for example, be used to imply intimacy or deference with a particular relationship.

The other dimension of variation in kinship terminologies is in the specifications (or referents) of the terms used by any particular society. Thus with roughly the same number of terms (or even with the same number of related terms), societies can fashion what may appear to be radically different forms of social organisation. Moreover, in many Malayo-Polynesian societies the specification of a kinship term, especially in Ego’s generation, depends on the gender of the speaker. Hence men and women may fashion distinctive structures of relationships by using the same terms to refer to different relatives. The specification of certain terms must therefore include the gender of the speaker.

One example is sufficient to illustrate this situation. Various contemporary Malayo-Polynesian-speaking populations have a term ipar, or a close cognate of ipar, that refers to some category of affine. The referents for this term, however, vary significantly. Thus, for example:
Ipar as an affinal category

1. Iban  
   **ipar**: A, same generation, both sexes

2. Sa‘dan Toraja  
   **ipar**: A, same generation, both sexes

3. Manggarai  
   **ipar**: HZ, BW, WBW, HZH

4. Sikka  
   **ipar**: MBD (m.s.), FZS (w.s.)

5. Tagalog  
   **ipag**: WZ, BW (if older)

6. Isneg  
   **ipag**: WZ, BW (m.s.); HB, ZH (w.s.)

7. Tagbanwa  
   **ipag**: WZ, BW (m.s.); HB, ZH, HZ, BW (w.s.)

This kind of situation presents formidable obstacles to any analyst who wishes to reconstruct the protolexemes of a kinship system and, on the basis of these reconstructed lexemes, attempts to deduce forms of social organisation. Variation in the number of terms that can cohere to constitute a relationship system raises the question of ‘completeness’; while variation in specifications of kin terms, even among closely related languages, raises a question of ‘determinacy of reference’.

These two problems are intimately connected since one would not wish to venture to construct an early form of kinship terminology without some reasonable assurance that the protolexemes one used were indeed complete. In specific terms, there are two questions: (1) When can one be confident of having constructed all the terms of a terminology? and (2) What can one infer from these terms, if this confidence can be established?

4. CANDIDATE TERMS FOR EGO’S GENERATION

Based on present knowledge, there would appear to be eight good candidate terms for Proto Malayo-Polynesian kinship in Ego’s generation. Whether this list of eight terms constitutes a ‘complete’ set remains to be established. For the purposes of this paper, the list is sufficient to illustrate the problem of indeterminacy. I list these candidate terms here with the simplest possible general glosses:

Proto Malayo-Polynesian kinship: Ego’s generation

1. *kaka/aka*  
   elder

2. *huaji*  
   younger

3. *laki*  
   male

4. *binay*  
   female

5. *ma-Ruqanay*  
   male relative

6. *betaw*  
   female relative

7. *hipaR*  
   affine

8. *qasawa*  
   spouse

---

4 Kinship data on the Iban is from J.D. Freeman (1960); on the Sa‘dan Toraja, H. Nooy-Palm (1979); on Sikka, P. Arndt (1933); on the Manggarai, Gordon (1980); and on the Isneg and Tagbanwa, R.E. Elkins and G.R. Hendrickson (1984).

5 The simple conventions used, in this paper, for these specifications are as follows: P = parent, F = father, M = mother, B = brother, Z = sister, S = son, D = daughter, Sb = Sibling, Sp = spouse, W = wife, H = husband, A = affine, unless further specification is required. Using these basic identifications, a variety of easily recognisable combinations can be constructed: MB = mother’s brother, MBD = mother’s brother’s daughter, WB = wife’s brother, ZH = sister’s husband, etc. This paper also uses the following additional conventions: e = elder, y = younger; m.s. = man speaking, w.s. = woman speaking.

6 Other possible candidate terms are *baliw, *bunting, *urang* and *nara*. 
Some of these eight can be considered as related pairs, which is in itself perhaps the most significant feature of this particular set. The first two of these terms (*kaka/*huaji) encode a notion of relative age (the elder/younger distinction); the second two (*laki/*binay) encode a notion of gender (the male/female distinction); the third two (*ma-Ruqanay/*betaw) also appear to encode some gender distinction between related individuals; while the last two terms (*hipaR/*qasawa), which do not form a pair, encode notions of affinity and marriage. Unlike *kaka/*huaji which form a reciprocal pair, reflexes of *hipaR in most Austronesian societies are self-reciprocal. Similarly reflexes of *qasawa are often but not always self-reciprocal.7

Assuming for the sake of discussion that this represents a reasonable, but not necessarily complete, repertoire of terms for Ego’s generation, we may speculate, on the basis of what we know of present Malayo-Polynesian societies, on the possible forms of social organisation this particular repertoire of terms might imply.

To illustrate some of these possibilities, it is instructive to consider the configuration of terms in Ego’s generation in a number of different contemporary Malayo-Polynesian societies that retain reflexes of these constructed PMP lexemes. Since there are eight lexemes in the constructed set, my choice of contemporary societies will be confined to societies that retain 50 per cent or more of these lexemes. To illustrate a range of variation, I have chosen societies with languages which, following Blust’s classification, belong to the Western (WMP), Central (CMP) and Oceanic (OC) subgroups of Malayo-Polynesian.

5. CONTEMPORARY MALAYO-POLYNESIAN VARIATION

The societies I have chosen to illustrate variations in terminologies are: (1) the Iban of Sarawak; (2) the Sa’dan Toraja of south Sulawesi; (3) the Ngada of central Flores; (4) the Rotinese of the Timor area; (5) the Sikka and Ata Tanai Ai of central east Flores and (5) the Fijians of the Lau Islands. In addition to their linguistic diversity, these societies can be taken to represent – according to present social typologies – significantly different forms of Malayo-Polynesian social organisation. After presenting the terms used in Ego’s generation for each of these societies, I provide a brief sketch of the social organisation of that society to give some idea of what makes it distinct from the other societies of this particular group.

It is useful to begin with a familiar well-documented society: in this case, the Iban of Sarawak who utilise eight terms in Ego’s generation of which five (aka, adi, laki, bini, ipar) are reflexes from the PMP set. I list these terms with minimal indicative specifications:

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7 These terms are candidates for Proto Malayo-Polynesian (PMP), not for Proto Austronesian (PAN) kinship. Much more systematic work must be done to make clear possible terminological developments from PAN to PMP. Interestingly the kinship terminologies of different Formosan societies make distinctions and equations that resemble those in other parts of the Austronesian world. Yet the use of lexical resources in these languages, in significant instances, differs systematically from the use of similar resources in Malayo-Polynesian languages: thus, to cite just a few examples, latq (Atayal, Sedeq), lelake (Rukai) and velake (Torulukané) all refer to ‘child’ without gender specification; iva [possibly from *hipaR] (Puyuma) refers to eSb, eSbSp, SpeSb; while sava [possibly from *qasawa] (Ami) refers to ySb without gender specification.
IBAN\(^8\)

1. **aka** e [no gender distinction: eB, eZ]
2. **adi** y [no gender distinction: yB, yZ]
3. **menyadi** Sb
4. **petunggal** PSbC ['cousins']
5. **laki** H
6. **bini** W
7. **ipar** A [same generation, both sexes]
8. **duai** SpA ['spouse of affine']

The Iban are one of the best documented societies in Southeast Asia and can be considered as a 'classic' case in the ethnographic literature on undifferentiated, bilateral societies. Iban social organisation is based on Ego-oriented bilateral kindred and thus has no system of 'descent' groups; nor have the Iban any rules of directed marriage.

The Iban are, however, much concerned with origins. Particular residential groupings trace their origins through a defined structure within a longhouse. As Sather has noted, each family has its 'source' (*pun bilik*) who is the custodian of the heritable estate including the ritual sacra and ancestral strains of rice (*padi pun*) that provide a critical link between the present and past generations (Sather 1993:70). The continuity of the *bilik* is dependent on residence and may follow either male or female lines. Hence the Iban are a society with 'origin groups' but without a strict system of descent.

The Sa’dan Toraja of south Sulawesi are another ‘classic’ case in the ethnographic literature. Like the Iban, in Ego’s generation the Sa’dan Toraja have five reflexes (*kaka, adi, [anak]muane/muane, baine and ipa*) from the PMP set.

SA’DAN TORAJA\(^9\)

1. **kaka** e [both sexes] Sb, PSbC
2. **adi** y [both sexes] Sb, PSbC
3. **sampu** PSbC ['cousins']
4. **anak muane** B, FBS, MBS, FZS, MZS ['‘brother, male cousins’]
5. **anak dara** Z, FBD, MBD, FZD, MZD ['‘sister, female cousins’]
6. **muane** H
7. **baine** W
8. **ipa’** A [same generation, both sexes]
9. **sangIalan** BW, ZH, HB, HZ, WB, WZ

In their kinship terms for Ego’s generation, the Sa’dan Toraja appear to be similar to the Iban. The Toraja share with the Iban reflexes (with the same specifications) for four of the PMP set: (1) *kaka*, (2) *adi*, (3) *baine* and (4) *ipa*. Moreover, Torajan *sampu* specifies the

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8 These specific kinship data come from Freeman (1960). In addition to this set of eight reference terms, the Iban use *wai* (Sp) and *ika* (e affine, eSp of affine) as terms of address.

9 These kinship data are from Nooy-Palm (1979:28-29). In addition to these terms, Nooy-Palm notes various alternative forms (with similar specifications) including the term, *siulu* to *loloku*, which is a poetic expression for full brother or sister. Cousins, regardless of sex, can be distinguished as ‘first’ cousins (*sampu pissan*), ‘second’ cousins (*sampu penduan*) and ‘third’ cousins (*sampu pentallun*).
same category of relations as the petunggal category among the Iban. Muane, however, replaces laki and has the general sense of ‘male’. Furthermore, unlike the Iban, the Toraja discriminate between male and female siblings and cousins.

Despite these similarities, Sa’dan Toraja social organisation differs considerably from that of the Iban. Sa’dan Toraja social organisation is composed of bilateral groups known as rapu that have been variously described as ‘ramages’ or as bilateral ‘descent’ groups. These groups are focused on a specific ancestor or ancestors (puang) associated with particular houses. Houses are themselves distinguished according to the nobility of their origin. Noble houses are known as tongkonan while lesser houses are referred to as the banua of a particular group. Individuals may trace links to their father’s and mother’s tongkonan and through these links ritually to other distinguished houses. Based on Waterson (1986), who describes houses in terms of their function as origin sites, I have argued that rapu can be considered as ‘origin groups’ with houses providing the physical structures for their representation of these groups (Fox forthcoming). If, among the Iban, ‘origins’ are structured in terms of apartments within the longhouse, among the Sa’dan Toraja ‘origins’ are based on a network of houses.

The islands of eastern Indonesia, particularly those in Nusa Tenggara Timur and the Molucca Islands, have been stereotyped as a region with societies possessing lineages and prescribed marriage systems. Although eastern Indonesia does have such societies that may be described in this way, the region is an area of considerable social variability. Neighbouring societies with closely related languages may differ quite considerably in social organisation. Current typologies tend to cast these differences as significantly different types.

The first case to be considered is that of the Ngadha of central Flores whose social organisation would appear to resemble that of the Sa’dan Toraja. Like the Sa’dan Toraja, the Ngadha have bilateral groups known as vocé [woé] that trace their origin to a specific male or female ancestor whose cult is located and identified with a particular ancestral house. The kinship terminology of the Ngadha, however, differs in significant ways from that of the Sa’dan Toraja. The Ngadha utilise only seven terms for Ego’s generation, of which four (kaé, cazi, veta, cipa) appear to be reflexes of the PMP set.

NGADHA\(^\text{10}\)

1. kaé \(e\) [same sex: eB (m.s.), eZ (w.s.)]
2. cazi \(y\) [same sex: yB (m.s.), yZ (w.s.)]
3. doca \(Sb\) [same sex: B (m.s.), Z (w.s.)]
4. veta \(Z\) (m.s.)
5. nara \(B\) (w.s.)
6. cipa \(WZ, BW\)
7. cédza \(WB, ZH\)

The critical features of this system that distinguish it from that of the Sa’dan Toraja are that (1) relative age terms are gender specific and are used primarily among members of the same sex; (2) in accord with the gender specific relative age terms, there is a set of opposite

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10 These kinship data come from Arndt (1954) and preserve his somewhat idiosyncratic orthography. Compound terms may be formed from these basic terms. Using tua, which is the reference term for senior affine, Spouse’s Parent (SpP), other affinal reference terms can be formed: thus, tua cédza may be used to refer to wife’s male relatives; tua cipa may refer to husband’s female relatives.
sex terms used among siblings (and parallel cousins); and (3) affinal terms are also gender specific: *cipa* refers to female affines in Ego’s generation; *cédza* to male affines.

Recent research in the Ngadha area indicates, however, that Ngadha is far less homogeneous an area than the published account by the missionary anthropologist, Paul Arndt (1954), would indicate. The region appears to form part of a complex chain of dialects extending through much of central Flores. The research by Andrea Molnar on a distinctive population of this ‘Ngadha area’ who identify themselves as Hoga Sara (of Sara-Sedu) points to the use of a set of terms not unlike those reported by Arndt, but with distinctive specifications (especially for the *cipa/cédza* categories) which are associated with different rules of directed marriage. Rules of marriage – whether symmetric or asymmetric – are associated with particular named ‘origin houses’ (*sa’o mézê* and clans *woe*). No single rule of marriage holds for Sara-Sedu as a whole. This research on the Hoga Sara highlights the importance of houses in establishing origins and the possibilities, particularly for first-born children, of attachments to more than one house, as is the case among the Sa’dan Toraja. 11

If the Sa’dan Toraja and the Ngadha (or Hoga Sara) provide examples of societies that permit the possibilities of bilateral and even multiple attachments to ancestral houses, such possibilities are simply not allowed among the Rotinese of the Timor area. Attachments are restricted to a single house and clan. The Rotinese terminology for Ego’s generation, however, resembles that of the Ngadha.

**ROTI (TERMANU)**

1. *ka’a* e [same sex: eB (m.s.), eZ (w.s.)]
2. *fadi* y [same sex: yB (m.s.), yZ (w.s.)]
3. *tolano* Sb [same sex: B (m.s.), Z (w.s.)]
4. *feto* Z (m.s.)
5. *nak* B (w.s.)
6. *hi’a* HZ, BW (w.s.)
7. *kela* WB, ZH (m.s.)
8. *saok* Sp
9. *touk* H
10. *inak* W

As in the case of the Iban and of the Sa’dan Toraja, Rotinese possesses reflexes for five (*ka’a, fadi, feto, hi’ a – metathesis of *hipaR – and saok*) of the eight PMP forms. 13 Although there is a difference in the referents for *cipa/h i’ a*, the first seven of these terms in the Rotinese terminology make virtually the same distinctions that Ngadha’s terminology makes.

Differences in social organisation are significant in that the Rotinese possess a more lineal system of named clans and lineages than in Ngadha. Houses conceived as social groups are

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11 Ms Molnar, who did extended fieldwork among the Hoga Sara, is currently completing her PhD thesis in the Department of Anthropology in the Research School of Pacific and Asian Studies, Australian National University.

12 These specifications are a simplification. Elder/younger categories are applied to parallel cousins as well as siblings.

13 In other relational contexts, Rotinese also distinguish between *mane/feto* (male/female) in a way that might reflect the set of the protolexemes, *ma-Ruqanay/betaw.*
of a lesser order than either clans or lineages. On Roti, there is no system of directed or prescribed marriage.

In all of the considerable literature on prescriptive marriage systems among the Malayo-Polynesians, no one has yet focused, in a systematic fashion, on the different lexical resources used to create these various systems.\(^{14}\) Hence there exists the assumption that the 'prescription of marriage' that occurs in certain societies is a single structural property that can somehow be attributed to the existence of specific lexical resources. Comparative evidence, however, would suggest the opposite: that prescriptive rules have been 'invented' in different parts of the Austronesian world -- and even in near neighbouring societies -- using different parts of a related lexicon. From this perspective, 'prescription' is not a thing-in-itself but a possible organisational component of some systems that can be structured in different ways using different linguistic resources.

I propose to illustrate this proposition by reference to three 'prescriptive systems'. The first two of these systems, from Sikka and Tana 'Ai on Flores, are particularly instructive.\(^{15}\) These two societies are linguistically closely related, each using a distinct dialect of the same language.

Like the Rotinese, both Sikka and Tana 'Ai can be said to reckon their origins lineally. In Sikka, however, this reckoning is through males, whereas in Tana 'Ai it is through women. Both societies share most of the same set of terms for relatives in Ego's generation. The only difference between the two is that Sikka preserves the term, ipar, which is not used in Tana 'Ai. Both societies prescribe marriage with a particular category of spouse designated within the same generation but, as is evident from the list of each society's kinship terms, Sikka and Tana 'Ai use different terms for the prescribed spouse. The difference is not simply a matter of lexical addition or substitution but rather a fundamental difference in the way the systems themselves are structured.

In the configuration of terminologies that we have already considered, the reflex of *hipaR has varied in its referents from that of a general category for affine to that of a reciprocal term used between specific female affines. In the Sikka system, there is a further change: ipar is used as a reciprocal cross-sex term to designate the prescribed spouse.

**SIKKA**

1. **wuê**
   e [same sex: eB (m.s.), eZ (w.s.)]
2. **wari**
   y [same sex: yB (m.s.), yZ (w.s.)]
3. **whine**
   Z, FZD (m.s.)
4. **nara**
   B, MBS (w.s.)
5. **ipar**
   MBD (m.s.), FZS (w.s.)
6. **wra\(^{16}\)**
   FZD, MBD, HZ, BW (w.s.)
7. **kerja**
   FZS, MBS, WB, ZH (m.s.)

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\(^{14}\) This is a systematic study that I have now begun. Here all I can do is illustrate my argument by reference to three different prescriptive systems.

\(^{15}\) For documentation on Tana 'Ai, see Lewis (1988); for Sikka, see Fox (1972); Fox and Lewis (1993).

\(^{16}\) It should be noted that wra here is a reflex of one of the candidate terms, *urang, which I have not included in the PMP set. Thus the Sikka case raises questions of both completeness and indeterminacy with which I began this paper. Reflexes of *urang are reasonably common in the kinship systems of the Flores/Moluccas region.
From this vantage point, we may consider the Tana 'Ai terminology. To appreciate the beauty of the Tana 'Ai terminology (and terminologies like it), however, it is important to consider the basis for such systems in other Malayo-Polynesian societies. Thus in Malay or Javanese, the term that normally refers to 'elder sibling' or 'elder brother' (kaka, kakanda in Malay; kakang, kangmas in Javanese) may also be used as an intimate term of affection or endearment for a 'husband' or 'lover'. Similarly in these languages, the term normally used for 'younger sibling' (adi, adik, adinda in Malay or Javanese) can be used for a 'wife' or 'lover'. This particular use of elder/younger which in some sense assimilates loving spouses to the category of intimate cross-siblings occurs in languages that use the elder/younger terms for both sexes as well as those that normally use the elder/younger terms between same sex siblings.

Some societies give systematic expression to this feature of linguistic usage and make it the basis for designating the 'prescribed spouse'. This is precisely what occurs in the Tana 'Ai system. In Tana 'Ai, the elder category, wue, is used by a woman to refer to her sister and her parallel cousin but also to refer to her male cross-cousins (MBS, FZS) from among whom she is enjoined to find a husband. Similarly, the younger category, wari, is used by a man to refer to his brothers and parallel cousins but also to his female cross-cousins (MBD, FZD) from among whom he must find a wife. Unlike ipar which is used reciprocally in Sikka, wue/wari are cross-sex reciprocals in Tana 'Ai.

**TANA 'AI**

1. **wue**
   - e [B, FBS, MZS (m.s.)]
   - e [Z, FBD, MZD (FZD, MBD) (w.s.)]
   - MBS (w.s.), FZS (w.s.)

2. **wari**
   - y [B, FBS, MZS (m.s.)]
   - y [Z, FBD, MZD, (FZD, MBD) (w.s.)]
   - MBD (m.s.), FZD (m.s.)
   - WZ, BW (m.s.)

3. **winé**
   - Z, FBD, MZD (m.s.)

4. **nara**
   - B, FBS, MZS (w.s.)

5. **ura**
   - HZ, BW, FZD, MBD (w.s.)

6. **kera pu**
   - WB, ZH, FZS, MBS (m.s.)

The last system I want to consider in this paper is a prescriptive system that occurs among the Lau islanders of Fiji whose language belongs to the Oceanic subgroup of Malayo-Polynesian languages. It has fewer reflexes of the PMP set that formed the starting point of this paper but the fact that it lacks a reflex of *hipaR* and does not use elder/younger categories to define the prescribed spouse means that it uses yet other lexical resources to achieve its own form of prescribed marriage.

This particular Fijian system therefore makes a good contrast with the Sikka and Tana 'Ai systems. Like the Tana 'Ai system, it is elegant in its simplicity. In this case, wati is used reciprocally to designate opposite sex marriageable cross-cousins and tavale is used reciprocally to designate same sex 'affinal' cross-cousins.
Hocart's description of this system, which focuses on the island of Lakemba in the Lau Archipelago, is another 'classic' in the anthropological literature. He describes a fluid system of named ancestral clans (matanggali) which are ranked as noble or commoner and subdivided into feasting groups known as 'sides of the oven' (mbati ni lava). This clan structure is based on 'origin houses' (vuvale; vu: 'base', 'origin', 'ancestor', 'god'; vale: house). Membership in such houses is determined by adoption as well as by residence rather than by strict rules of descent. The social organisation of Lakemba, especially in its various possibilities of affiliation to houses or origin, resembles that of the Sa'dan Toraja and the Ngadha but with a distinctive system of marriage.

6. CONCLUSION

Kinship terminologies by their subtlety, variability and complexity present an interesting arena for the discussion of the semantics of classification. Having considered examples of the different uses of similar terms in Ego's generation in a few Malayo-Polynesian societies, I return to the question of the 'determinacy of specification'. Based on the variability of the examples I have cited, I would like to consider two possible sets of specifications for the eight PMP candidate terms with which I began. Each of these sets forms a coherent configuration. Although there is no necessary coincidence between a terminology and a particular form of social organisation, nonetheless one would tend to consider these two contrastive configurations as likely to reflect different forms of society.

The first of these possible configurations would have the following specifications:

*CONFIGURATION I

1. *kaka/aka eSb [both sexes]
2. *huaji ySb [both sexes]
3. *laki H ['male']
4. *binay W ['female']
5. *ma-Ruqanay B (w.s.)
6. *betaw Z (m.s.)

These kinship data derive from Hocart (1929) and therefore follow his orthography. Taci is now the more common spelling for Hocart's tathi; a synonymous term for wati is davola.

The use of tuaka/tao is much more subtle than I indicate here. Thus for example, tao can be used to refer to yB but also to yBC (m.s.). Since these distinctions do not relate to my argument at this stage, I cite only a truncated list of specifications.

It would appear from Hocart's account (1929:17,199) that in the dialect spoken on Lakemba the term vu derives from Proto Malayo-Polynesian *puqun: 'tree, trunk, base, source, origin', rather than from *t-*u(m)pu (or *epu): 'ancestor, master'.
A society with this sort of terminological configuration would tend towards bilaterality and it might even be possible to maintain bilateral groups with this kind of configuration. Such a society would resemble that of the Iban or the Sa’dan Toraja.

The second of these possible configurations would have the following specifications:

**CONFIGURATION II**

1. *kaka/aka*  
   eB, eFBS, eMZS (m.s.);  
   eZ, eFBD, eMZD (w.s.)
2. *huaji*  
   yB, yFBS, yMZS (m.s.);  
   eZ, eFBD, eMZD (w.s.)
3. *laki*  
   H, MBS, FZS (w.s.)
4. *binay*  
   W, MBD, FZD (m.s.)
5. *ma-Ruqanay*  
   B, FBS, MZS (w.s.)
6. *betaw*  
   Z, FBD, MZD (m.s.)
7. *hipaR*  
   WB, MBS, FZS (m.s.);  
   HZ, MBD, FZD (w.s.)
8. *qasawa*  
   Sp

This configuration suggests a degree of lineality and would be consistent with a two-line system of symmetric marriage. It is by no means as elegant as the Fijian system from the Lau Islands but nevertheless makes the same distinction.

It would be possible to continue this exercise and construct other alternative configurations using these same resources. However, the particular configurations that I have constructed pose an intended contrast. Blust (1980b) has proposed a dichotomy between what he states are two opposing hypotheses regarding ‘early Austronesian social organisation’: the one a “prescriptive alliance hypothesis” and the other a “bilateral hypothesis”. In terms of this dichotomy, Blust has marshalled evidence and arguments in favour of the “prescriptive alliance hypothesis”.

I question the usefulness of Blust’s typological categorisation of Austronesian societies exclusively on the basis of ‘descent’; I am also sceptical of some of his chief arguments; and I remain unconvinced by certain of the data he has assembled in support of them (Fox 1980a, 1988b). Whereas systems of prescriptive alliance are well attested in eastern Indonesia (Blust’s CMP subgroup), the overwhelming majority of the societies of the Philippines, Borneo, Sumatra, Java, Bali and Sulawesi (Blust’s WMP subgroup) exhibit a bilaterality that is difficult to reconcile with Blust’s view of early Austronesian social organisation. Moreover, having studied various native systems of dual classification, I am wary of the classificatory use of dichotomies and of the sides that can be drawn in terms of them.

From this perspective, the two configurations that I have constructed are pertinent, since the first configuration is clearly bilateral while the second is clearly prescriptive. The essential point to be made is that the introduction of a single feature – determination of referent by gender of speaker – can transform Configuration I into Configuration II. As I have argued in another context, “with virtually the same terminological resources, it is as easy to construct a two-line symmetric terminology as it is to construct a cognatic [ie. bilateral] terminology” (Fox 1988b:40). If this is the case, it may be possible to construct either system for Proto Malayo-Polynesian.
Rather than adopting one side in an uncomfortable oppositional dichotomy, it might be more productive to recast the question: where, at what stage, and to what extent did Malayo-Polynesian languages develop the feature of 'gender of speaker' as a prominent defining feature of relationships in Ego's generation? Whereas generation, gender, age and relative age are fundamental to Malayo-Polynesian kinship terminologies, gender of speaker is a more variable feature. It is often elaborated as a major semantic resource in the creation of systems of directed marriage, but would appear to be less developed in many bilateral systems. Tracing the development of this feature in particular may explicate some of the early history of Malayo-Polynesian social formations. There is much that remains to be sorted out at lower order levels of comparison before we can be confident of higher order reconstructions. Research at both levels needs to go hand in hand.

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1. INTRODUCTION

Of all the possible semantic fields that comprised the vocabulary of the speakers of Proto Central Pacific (PCP), the language of the original settlers of Fiji, Rotuma, and Polynesia, I have chosen to concentrate on *ika.1 The reasons for my choice are very practical. Firstly, the availability of data: I have done extensive research on fish names in Fiji over the past ten years or so, and there are a number of published works on fish names in other parts of the Pacific. Secondly, the size of the corpus: while a discourse on animals would be relatively brief, and a study of plant names a major undertaking, fish names, which average in Fiji something like 150 to 300 taxa per fishing community, are of a manageable size. Thirdly, the comparability of the data: because the marine environment differs little in the area covered by the Central Pacific languages, apart from the well-known diminution of taxa from west to east, and also because fish typically have little use culturally other than as food, the semantic scope of fish names tends to be more restricted, and relatively free of the kinds of cultural association that frequently attach themselves to vocabulary in some other semantic fields, increasing the likelihood of semantic change. In other words, I believe that fish names in Pacific languages have been relatively resistant to semantic change, though I have made no attempt to test my belief statistically.

This is not, however, to claim that fish names are resistant to borrowing: as will become evident below, there are many examples of Polynesian fish name loans in Fijian, and vice versa. A rough count of Rotuman fish names also suggests that approximately a third are borrowed from Polynesia, which is comparable to Polynesian loans in the Rotuman lexicon as a whole.

The reconstructions below offer some insights into subgrouping among the Central Pacific languages. While one comparison (PCP *veke ‘octopus’) indicates a shared innovation of Rotuman and Polynesian, two (PCP *ije ‘Hemiramphidae’ and *?ono ‘Sphyraena barracuda’) show shared innovations of Rotuman and Fijian. Among Polynesian languages, Fijian appears to share a number of forms exclusively with the outliers, and especially with Emae (cf. PCP *batisai, *oje, *bobo, *kabatia and *(?)uf(iu)). I hope to be able to explore the implications of this observation in a future paper.

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1 The range of the PCP word *ika, usually glossed 'fish', includes also (at least) marine mammals and cephalopods. This also was true of the English word 'fish', until it was commandeered by pedantic science teachers as a translation for the Linnaean 'Pisces'.

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2. SOURCES OF DATA

I have gathered fish names and identifications from the standard dictionaries of Pacific languages and lists of reconstructions, as well as through fieldwork and from other publications. I have conducted fieldwork in Fiji on and off over the past ten years or so, and gathered lists of fish names from many fishing communities in all parts of Fiji. With the help of numerous ichthyological reference works, and in particular the assistance and encouragement of Dr Antony Lewis, then Principal Research Officer at the Department of Fisheries in Fiji, I have been able to identify most species in the field. I also conducted fieldwork among the Rotuman and Tongan communities in Suva, to check and improve on the data available in the dictionaries.

Other works consulted include the following:

- Hooper (this volume)
- Pulu (1981)
- Dalzell et al. (1990)
- Rensch (1983)
- Salisbury (1990)
- Zann (1980)
- Rensch (1988)
- Barnett (1978)
- Akimichi (1978)
- Akimichi & Sauchomal (1982)
- Johannes (1981:199-202)

3. RECONSTRUCTIONS

The PCP phonemes *z (Geraghty 1986:297-300) and *R (Geraghty 1990:89-91) are difficult to distinguish, so for the purpose of this list are reconstructed simply as *c and zero respectively.

Proto Fijian forms are all my own reconstructions. Supporting data are not explicitly provided, being implicit in the reconstructions: the distribution of reflexes in Fiji is of no consequence, since a form witnessed anywhere in Fiji and externally may be reconstructed for PFJ. The exception is that if a form is restricted to Lau and/or Eastern Vanualevu, and witnessed externally only in Polynesia, it may be a post-PFJ development, attributable to either Proto Tokalau Fijian (Geraghty 1983:348, 366-382) or more recent borrowing. Such instances are noted. Proto Polynesian and other reconstructed forms, if found neither in the standard works nor in Hooper (this volume), may also be taken to be my own, in which case the necessary data are provided. A form is reconstructed for Proto Central Pacific if cognates are found in any two of these three witnesses, or in any one plus an external witness. For external witnesses, abbreviations which may be unfamiliar are PNV for Proto North Vanuatu (the same as Clark’s (1986) Proto North Central Vanuatu) and PSO for Proto Southern Oceanic, the ancestral language of New Caledonia and the Loyalty Islands (Geraghty
PROTO CENTRAL PACIFIC FISH NAMES

1989b).2 In references to sources for external reconstructions, B stands for Blust and G for Geraghty, so B80a refers to Blust (1980a), and so on. Orthographic and other conventions are as in Geraghty (1986 and 1990): essentially, I write all Eastern Oceanic data in a single consistent orthography, which is based on that of Fijian, so /g/ is [ŋ], /c/ is [ð], and /x/ is a velar fricative.

3.1 LAMNIFORMES (CARCHARHINIDAE, SPHYNIDAE): SHARKS

*mag(e)o ‘shark’
PPN *magó
PSS (TMB mageo)

*/?aso ‘k.o. large shark, Carcharhinus sp.’
PFJ *yaso ‘C. amblyrhynchos (?)’
PPN *?aso (SAM, NUK ‘C. albimarginatus’)

*xarawa ‘k.o. large shark’
PFJ *karawa ‘I surus’
PPN *?alawa ‘k.o. shark’ (EUV ‘C. limbatus’; TUV ‘C. longimanus’; REN, TIK ‘C. melanopterus’; TUV, EP ‘Negaprion’)

PSO *xarau ‘k.o. shark’

GIT arawa ‘shark’
PPT *kwarawa ‘shark’

Rotuman ?arawa is a Polynesian loan. The supposed Fijian cognate of PPN *?alawa has long been listed as yalawa, as in Capell’s (1941) dictionary. This, along with yane ‘moth’, now appears to be a Tongan form inadvertently entered by Cargill in his manuscript dictionary of 1840, and reproduced automatically in every Fijian dictionary since.

*?-ufi ‘k.o. large shark’
PFJ *qio/uvi ‘Carcharhinus plumbeus?’ (qiō ‘shark’)’
PPN *naiufi ‘Galeocerdo, Carcharodon carcharias’

*?-taniva ‘Galeocerdo, tiger shark’
PFJ *qio/daniva
PPN *tanifa ‘k.o. large shark’

Rotuman tanifa is a Polynesian loan. The derivation from *taniva ‘sardine’ is because of the similar iridescent zigzag vertical lines on the sides of the body.

*mata?italiga ‘Sphyrna, hammerhead shark’
PFJ * mataitaliga
PPN * mata?italiga

Analysable as ‘eyes-in-ears’. Rotuman matualiga (Churchward (1940), but not recognised by informants) is a Polynesian loan.

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2 See Appendix for abbreviations of language names.
3.2 MYLIOBATIFORMES (MYLIOBATIDAE): RAYS

*vaï ‘Myliobatiformes, ray’
PFJ *vaï
PPN *fai
ROT hai

PM C *fai-
PSS *vali
PNV *vaRi

*vaïmanu ‘Aetobatis narinari, eagle ray’
PF J *vaïmanu
PPN *fai'manu
PEO *vaRimanu (G90)

It is possible also to reconstruct PCP *vaibekwa (PF J *vaibekwa, TIK faipeka, SAM faipe’a), but the chances of parallel development of the form (‘ray’ + ‘bat’) are very high.

3.3 ISOSPONDYLI (ALBULIDAE): BONY FISHES

*k(iu)o ‘Albula’
PFJ *kikio
PPN *kiokio
ROT ?uo ‘very bony fish’
PEO *kuRo (G90)
PWMP *kuRaw ‘edible marine fish’ (B80a)

*vula ‘Megalops’
PFJ *vula
PWMP *bulan ‘k.o. fish’ (B83-84a)

Note that Fijian *vula is a reconstructed form – reflexes actually occurring are vuvula and yavula. Although Blust cautiously defines *bulan as ‘k.o. fish’, three of the five witnesses specify Megalops, a fourth offers a good description, and the fifth is simply ‘k.o. sea fish’.

3.4 ANGUILLIFORMES (ANGUILLIDAE): EELS

*tuna ‘Anguillidae, freshwater eel’
PFJ *tuna
PPN *tuna
ROT tuna

*bonu ‘Ophichthidae, snake-eel’
PFJ *bonu
PPN (TON ponu ‘intestinal worm’, ponuponu ‘k.o. seaworm’)
*(bp)ulewa 'k.o. eel'
PFJ *boila 'sea-eel'
PPN *pulewa 'Echidna nebulosa' (TUV)

PSS (Nggela puleo 'k.o. eel')
PNV (cf. MTA maleo 'sea-eel')

TON toke poila 'k.o. eel' is probably a loan from Fijian.

*bakū 'k.o. eel'
PFJ *bak(u)u 'conger'
ROT pātu 'sea-eel'

PSV (LEN piku 'k.o. eel')

*dābea 'k.o. sea-eel or sea-snake'
PFJ *dābea 'Gymnothorax javanicus'
PPN *tāpea 'particoloured sea-snake, Pelamis platurus' (REN)
ROT ?apea 'k.o. very long sea-snake'

The Rotuman initial is irregular.

*p(i)si 'sea-eel'
PFJ *pisi 'Echidna nebulosa'
PPN *pusi 'Gymnothorax spp.'

Rotuman tepuhi 'k.o. eel' is clearly a Polynesian loan with fused article te.

*asuli 'k.o. sea-eel'
PFJ *suli 'conger'
PPN *asulu (SAM 'Strophidon')

CHM asuli 'Anguillidae'
PWMP *kasuli 'Anguillidae'

*dravua 'Gymnothorax sp.'
PFJ *dravua 'Siderea picta'
PPN *(r)afua
PSO *drayu

The PPN reconstruction is based on TIK rafua (note also RIM rehui 'Echidna nebulosa'). The *y in PSO may be irregular.

3.5 CLupeidae: Sardines

*taniva 'Sardinella'
PFJ *taniva

PMC (PON saip, PUL hanif 'anchovy', TRK senifa 'herring')
PNV *taniva (URI daniv)
Lo (Admiralties) tenih (B76b)

NUK sanipa 'silversides' is presumably a Nuclear Micronesian loan.
The genus *Praneus* is a member of the Atherinidae (hardyhead, silversides) family, but very similar in appearance and habit to sprats.

The PPN reconstruction is based on TON hā ‘very small schooling fish, like whitebait’ (dubious cognate), NUK salā ‘flying fish’, LUA salā ‘small blue fish’, SIK salā ‘k.o. fish’, TAK sarā ‘k.o. small fish’. Churchward’s (1940) Rotuman sarā ‘k.o. fish’ is unknown to informants. An irregular development is PPN *sali, ‘Atherinidae’ (TON helī, SAM salī, TUV salī, REN saqī), but see *dralā (section 3.18) for a similar correspondence set.

### 3.6 Engraulidae: Anchovies

*vaya ‘k.o. anchovy’

PFJ *vaya ‘Thrissina baelama, anchovy’

PPN *fā (SAM ‘Megalops’)

GIT paya ‘anchovy, pilchard’

MAN wayawaya ‘sardine’

PMP *paya ‘k.o. small fish, sardine or anchovy’ (B80a)

### 3.7 Synodontidae: Lizard Fishes

*dolo ‘Seurida, lizard fish’

PFJ *dolo

PPN *tolo
The PPN reconstruction is based on TIK toro, EUV tolo ‘goby’, SAM tolo ‘small mudskipper’.

3.8 CHANIDAE: MILKFISHES

*?awa ‘Chanos’
PFJ *yawa
PPN *?awa
PSS *awa
PAN *qawa? (B80a)

3.9 PLOTOSIDAE: EEL CATFISHES

*kapoa ‘Plotosus, catfish’
PFJ *kapoa
PPN *kapoa
PEO *kapoRa (G90)

3.10 EXOCOETIDAE: FLYING FISHES

Flying fish are rarely, if ever, fished in Fiji, though they are an important food source in many parts of Polynesia. *mâolo, *sasave and *sipa can all be reconstructed for PPN, but both Fijian mâolo, which is confined to Lau, and Rotuman sasave appear to be Polynesian loans. (See also next item.)

3.11 HEMIRAMPHIDAE: HALFBEAKS, GARFISH

*b(iu)sa, *s(iu)pa ‘Hemiramphus’
PFJ *busa
PPN *sipa ‘k.o. small flying fish’

*i je ‘Hemiramphidae’
PFJ *sise
PPN *ise
ROT jija
PEO *Rije (G90)
LAK lise

Prothesis of *s or *j appears to be a shared innovation of Fijian and Rotuman.

*gwa(kx)a ‘Hemiramphus’
PFJ *g(w)aka
PPN (*ga?a ‘Rastrelliger’)
PTK *mwaki ‘juvenile Strongylura’
PPT (*mwaka ‘tooth’
3.12 BELONIDAE: NEEDLEFISHES

*(cs)aku ‘Belonidae’
PFJ *saku
PPN *haku
PMC *saku
MAN sa?u ‘garfish’

3.13 Atherinidae: silversides

See *?otu, *?uluqwa?u and *sarā (section 3.5) for possibilities.

3.14 HOLOCENTRIDAe: squirrelfishes

*ta?a ‘Sargocentron spinifer’
PPN *ta?a
PEO *taRa?a (G90)
*ma(r)au ‘Holocentridae’
PFJ *merau ‘Sargocentron’ (PN loan?)
PPN *malau
*kuru ‘Myripristis’
PFJ *kuru
PPN *kuru
ROT ?uru
PMC *kuru ‘Holocentridae’ (KIR kū, MOK kīr, TRK kkiji)

3.15 SYNGNATHIFORMES (Aulostomidae): Trumpet-fish

*bābā ‘Fistularia, flutemouth’
PFJ *bābā
PPN *pāpā
CHM ba?yak ‘Aulostomus’

3.16 Scorpaenidae: Scorpion-fishes

*ñovu ‘Synanceia verrucosa, stonefish’
PFJ *ñovu
PPN *nolur
ROT nohu
Churchward’s (1940) nuhu for Rotuman is denied by informants.
3.17 DACTYLOPTERIDAE: FLYING GURNARDS

*lulu ‘Dactyloptena’
PFJ *lulu
PPN *lulu

The PPN reconstruction is based on TON lulu/tahi (tahi ‘sea’) and MAE ruru ‘k.o. fish’. However, there is a strong likelihood of parallel development from *lulu ‘owl’.

3.18 SERRANIDAE: GROUPERS

*donu ‘adult Plectropomus’
PFJ *donu
PPN *tonu
ROT tonu ‘Cephalopholis argus’
*dralā ‘red Cephalopholis sp.’
PFJ *dralā ‘C. miniatus’
PPN *lalī (PUK lalī ‘scarlet sea bass’, TAH rari ‘C. sexmaculatus, coatesi’, RAP rari ‘Epinephelus fasciatus’)

The PPN reconstruction is highly speculative, the final vowel being quite irregular, but showing a similar correspondence to *sarā (see section 3.5).

*gwajala ‘Epinephelus spp.’
PFJ *kasala
PPN *gatala
ROT vajala

The Fijian k is irregular.

*kwāvu ‘Epinephelus sp.’
PFJ *kwāvu ‘Promicrops, giant rock cod; E. hoedtii’
PSS *xulavu
PMC *ku(r)au (KIR kuau ‘E. merra’, MOK kiro ‘Epinephelus sp.’)

If this comparison is correct, PEO *kuRavu is implied, and a solution offered as to the origin of the Fijian labiovelar /kw/ (Geraghty 1983). Note that POC *mwa, the source of the labiovelar nasal /gw/ in Fijian, also appears to have originated, at least in part, from coalescence with a following unstressed *u, for example, *ma-Ruqanay ‘male’ > POC *mwa?ane (with metathesis).

*koto ‘Epinephelus sp.’
PFJ *koto
PMP *keRteng

*munua ‘large Epinephelus sp.’
PFJ *munua ‘large E. microdon’
PPN *munua
3.19 TERAFONIDAE: TERAPON PERCHES
See under *kawakawa in section 3.45 for a discussion of the Polynesian terms for Terapon jarbua.

3.20 KUHLIDAE: MOUNTAIN BASSES
*sesere ‘immature Kuhlia rupestris’
PFJ *sesere
PPN *sese(r)je

3.21 PRIACANTHIDAE: BIG-EYES
It is possible to reconstruct *matapula from forms in PFJ and PPN, but the Fijian is probably borrowed from Polynesian; in any case there is a high probability of parallel development (‘eye’ + ‘wide-open’).

3.22 APOGONIDAE: CARDINALFISHES
See *vo(?)o in section 3.65.

3.23 ECHENEIDIDAE: REMORAS
See *bakewa in section 3.65.

3.24 CARANGIDAE: JACKS
*laci ‘Scomberoides sp.’ (= Chorinemus sp.)
PFJ *laci  
PPN *la(h)i  
PMC *lasi (KIR nari)

Hooper (this volume) reconstructs PPN *lai, but both the putative Tongic reflexes are glossed ‘k.o. fish’, so PPN *lai remains a possibility.

*?atule ‘Selar crumenophthalmus’
PFJ *yautéle
PPN *?atule
ROT afule
PMC (KOS ahtol; MOK aotol ‘large mackerel’)
PSV (LEN iesil ‘sardine, anchovy’)

As noted elsewhere (Geraghty, in press), the lengthening of pretonic /a/ in Fijian is irregular, but not uncommon.
*qawaqawa ‘Gnathanodon’
PFJ *qawaqawa ‘+ Trachinotus’

GIT kawakawa ‘golden trevally’
*vilu ‘Gnathanodon, Trachinotus’
PFJ *vilu
PPN *vilu ‘Gnathanodon (TON), Trachinotus (EUV), Carangoides (SAM)’

GIT pilu ‘k.o. trevally’
PAL uii

*jeu ‘Carangidae sp.’
PFJ *seu ‘Gnathanodon’
PPN *teu ‘Caranx sp.’

Note also PPN *äeu ‘Caranx sp.’. The Fijian is said to be related to the verb seu-t ‘dig (sand)’.

*?ulu(a) ‘Caranx ignobilis’
PFJ *uluulu
PPN *?ulua

Obviously formally problematic. Possibly derived from *?ulu- ‘head’, because of its impressive-looking head, cf. another Fijian name for this species, uluqwåqwå ‘strong-head’.

*i-kata ‘large Caranx sp.’
PFJ *i-kata ‘C. sansun’
PPN *kata

Some doubt due to semantic transparency in the Fijian form, which means ‘biter’, that is, predator.

*lawega ‘Alectis’
PFJ *lawega
PPN *lawega ‘k.o. fish’

PPN is based on SAM lavena ‘k.o. fish’, REN qavega ‘k.o. small fish’, TIK ravega ‘k.o. large fish’. This form is presumably related to PCP *lawe ‘long feather, plume’, referring to the long plume-like dorsal and ventral fins.

3.25 CORYPHAENIDAE: DOLPHINFISH
PFJ *sila may be related by metathesis to PMP *laji ‘dolphinfish’, but see *laci in section 3.24.

3.26 LEIOGNATHIDAE: PONYFISHES
*cula(?)a ‘Gazza minuta’
PFJ *cula
PAL tui?
This reconstruction is highly tentative, not only because of the lack of cognates other than Fijian and Palauan, but also because the putative Palauan cognate, culled from my notes, is found neither in the standard Palauan dictionary (Josephs 1990) nor in Johannes (1981). I include it still in the hope that someone will be able to confirm or deny the Palauan form.

3.27 CAESIONIDAE: FUSILIERS

*tikawa ‘Caesio sp.’
P FJ *tikawa
PPN *tikawa (SAM, TIK ‘k.o. fish’, PUK ‘juvenile Caesio’)
*culi ‘Caesio sp.’
P FJ *(cs)uli(cs)uli
PPN *huli

The PPN reconstruction is based on TON huli, SAM ulisega, and PUK uli. NIU ulihega ‘herring’, if cognate, is probably a loan from a Nuclear Polynesian language.

3.28 LUTJANIDAE: SNAPPERS

*tāe? a ‘Lutjanus gibbus’
P FJ *tāea
PPN *tāe?a (NP)
ROT taea? a ‘k.o. red fish with orange fins’ is probably a Polynesian loan.
*bo?a ‘Lutjanus sp.’
P FJ *boa ‘L. gibbus’
CHM bu?a ‘L. vaigiensis’
*kwak(ei) ‘Lutjanus monostigma’
P FJ *kwak(ei) ‘+ L. fulviflamma, fulvus’
PPN *kaka (SAM ‘+ Lutjanus sp.’)
*batisai ‘Lutjanus monostigma’
P FJ *kake/batisai
MAE patisai ‘k.o. large Lethrinus’
The Emee form may be Polynesian or a Vanuanu loan.
*taciwa ‘Lutjanus sp.’
PPN *tā(h)iva ‘L. monostigma?’
ROT sasiva
Rotuman shows regular assimilation, cf. sasi ‘sea’ < *taci (Geraghty 1986:293-294). NTP ta?iva is not consistent with this PPN reconstruction, which is required by the Rotuman cognate; I suspect the glottal stop is spurious.
*takabe ‘Lutjanus kasmira’
P FJ *takabe
PPN *takape
Kiribati takape is probably a Polynesian loan. Most of Western Polynesia has replaced this with savane/havane.

*?uto ‘Aprion virescens, grey jobfish’
PFJ *ut(ou)
PPN *?utu

PAL ?udel

Rotuman ?utu is clearly a Polynesian loan.

*(cs)abutu ‘Lutjanus or Lethrinus sp.’
PFJ *(cs)abutu ‘Lutjanus bohar, L. rivulatus, L. malabaricus, L. gibbus; Lethrinus kallopterus, L. mahsena’
PPN *saputu ‘Lutjanus rivulatus, L. gibbus; Lethrinus miniatus, L. chrysostomus, L. kallopterus’

MTU dabutu ‘k.o. fish’

Churchward’s Rotuman saputu ‘k.o. fish’ is not confirmed by informants. For the long vowel in the Fijian reflex, see under ?atule (section 3.24).

3.29 NEMIPTERIDAE: MONOCLE BREAMS

3.30 GERREIDAE: MOJARRAS

*matu(matu) ‘Gerres’
PFJ *matu(matu)
PPN *matu
ROT mafu

PMC *matumatu (MRS mejmēj)

3.31 HAEMULIDAE: GRUNTS AND SWEETLIPS

3.32 LETHRINIDAE: EMPERORS

(See also *(cs)abutu in section 3.28.)

*(bm)ū ‘Monotaxis grandoculis’
PFJ *mū, *bū
PPN *mū

*ikatu?u ‘Gnathodentex’
PFJ *ikatu
PPN *ikatu?u

The PPN reconstruction is based on only KAP ikatū ‘k.o. fish’ and MVA ikatū ‘k.o. small seasonal fish’. The glottal stop is supplied from *tu?u ‘stand’ because of the morphemic transparency of the word in Fijian, Gnathodentex having the habit of stopping suddenly.
This is a highly speculative reconstruction on account of both the morphemic transparency and the lack of identifications for the Polynesian forms.

* kabatiko 'Lethrinus sp.'
PFJ *kabatiko 'L. harak'
PPN *kapatiko (TON keepesiko 'k.o. fish', TUV kapatiko 'L. elongatus')

* kabativa 'Lethrinus sp.'
PFJ *kabativa 'L. harak'
PPN (MAE ikabatia 'Lethrinus sp. ')

* kacika 'large Lethrinus sp.'
PFJ *ka(cs)ika 'L. xanthochelius'
ROT ?asi?a

PM C (MOK katek, SAT yátik, CAR atix)
PSS (STA xasixa 'L. elongatus')

* kawago 'Lethrinus nebulosus'
PFJ *kawago
PPN *koago (TON koago, EUV kuago 'L. xanthochelius')

PSS *kawago (LAU ?akwago 'k.o. large fish', SAA awago 'k.o. fish eaten only by older men')

* gu(j)ula 'Lethrinus elongatus'
PFJ *gu(st)ula
PPN *gutula

* kulabo 'Lethrinidae sp., probably Gnathodentex sp.'
PFJ *kulabo 'Gymnocranius'
PPN *kulapo (TON kulapo, EUV kulapo 'Lethrinus nematacanthus ')

PWMP *kulambar 'Gnathodentex, Scolopsis' (B86)

Rotuman ulapu 'k.o. fish' may be related, but *k is not usually lost.

3.33 MULLIDAE: GOATFISHES

* t(ei)?(ou) 'Upeneus vittatus'
PFJ *teu

MTA tio 'k.o. fish with barbules'
MOK je 'k.o. goatfish' (PMC *tomea 'Mulloidichthys')

MTU sio 'k.o. fish'

PAL de? 'Mulloidichthys flavolineatus'
CHM ti?ao
PAN *Ciqew 'goatfish'

*tewe 'Mulloidichthys sp.'
PPN *wete

PMC *tewe (KIR tewe, ULI sou)
Possibly belongs to the preceding set, in which case 

\( *i > *e \) is a shared innovation of PMC and PCP (but not PNV), and 

\( *o > *we \) is a shared innovation of PMC and PPN (but not Fijian). PPN shows metathesis.

\( *(?\text{avulu}} {\text{Mulloidichthys vanicolensis}}' \)

PPN \( *(?\text{afulu} \)

PMC (PON \textit{epil})

The PPN reconstruction is based on SAM \textit{afulu} ‘juvenile \textit{M. vanicolensis}’, TUV \textit{afulu}, NUK \textit{ahulu} ‘k.o. goatfish’, REN \textit{?ahuqu} ‘small fish said to resemble the parrotfish’, and PEP \textit{*kahuru} ‘k.o. goatfish’ (\( *? > k \) irregular).\(^3\)

\( *\text{ojе} {\text{Mulloidichthys spp.}}' \)

PFJ \( *\text{ose} \)

PPN \( *\text{ose} \)

ROT \( *\text{ojе} {\text{M. vanicolensis}}' \)

The Rotuman is from informants. Churchward (1940) gives \textit{oji} ‘fish, long-shaped, pinkish, with yellow tail, large eyes’, which may refer to \textit{M. vanicolensis}. The PPN reconstruction is based only on MAE \textit{ose} ‘Parupeneus sp.’, but a loan seems highly unlikely.

\( *\text{gwacaci} {\text{Parupeneus sp.}}' \)

PFJ \( *\text{g(w)acaci} \)

ROT \textit{vasasi}

PPN \( *\text{mw} (\text{cs})a(cs)i \) (Langalanga, ARE, ULW)

PMC (PON \textit{mwamwalis} ‘\textit{P. chryserydros}’, MOK \textit{mwoatoal} ‘k.o. goatfish’)

\( *\text{matuxurau} {\text{Parupeneus sp.}}' \)

PFJ \( *\text{matukurau} {\text{P. porphyreus}}' \)

PPN \( *\text{matu?ulau} \)


\subsection{3.34 MONODACTYLIDAE: SILVER BATFISHES}

\subsection{3.35 PEMPHERIDAE: SWEEPERS}

PNP \( *\text{manifi} \) may be related, with metathesis, to Rotuman \textit{mahini} ‘k.o. fish’.

\footnote{The fate of Proto Polynesian glottal stop in Eastern Polynesia appears from this study to be not so straightforward as previously assumed. Apart from this instance of PEP \( *k \), Rensch (1988) lists the following examples of PPN \( *? > \) Tuamotu \( /h/: *\text{te\text{t}e\text{t}e\text{t}e} \) ‘\textit{Arothron}, pufferfish’ > \textit{tehetete}, \textit{tetehe}, \( *\text{t\text{a\text{c}}}a \) ‘\textit{Lutjanus gibbus}’ > \textit{tahea}, \( *\text{alawa} \) ‘k.o. shark’ > \textit{harava}.}
3.36 KYPHOSIDAE: RUDDERFISH

*r(ae)nu(ae) ‘Kyphosus’
PFJ *rēnua
PPN *nanue

PMC (PTK *r(ae)nu)

The Tongic subgroup loses *na- irregularly; EUV nue is probably a Tongan loan.

3.37 EPHIPPIDAE: BATFISH

*vuna ‘Platax’
PFJ *vunavuna

PMC (MOK pwūn)

PMP *buna ‘k.o. fish’ (B80a), reflexes include: SEI pur ‘large flat white pelagic fish’, AUA puna = Pidgin plangpis, cf. plang ‘plank, board’.

3.38 CHAETODONTIDAE: BUTTERFLY FISHES

*tivitivi ‘Chaetodon spp.’
PFJ *tivitivi
PPN *tifitifi

PNV *tiviiivi (MTA)
Rotuman tififī is a Polynesian loan.

3.39 POMACANTHIDAE: ANGELFISHES

3.40 POMACENTRIDAE: DAMSELFISHES

*duku ‘Pomacentridae’
PFJ *duku ‘Abudefduf’
PPN *tu(tk)uku
ROT tutu ?u

*mu(td)u ‘Abudefduf’
PFJ *(td)umu
PPN mutu
ROT mutu
PAL mud ‘damselfish’
Rotuman mutu may be a Polynesian loan. The Fijian is metathesised.
3.41 CIRRHTIDAE: HAWKFISHES

Fijian pātuki is almost certainly a Polynesian loan, being confined to Lau.

3.42 MUGILIDAE: MULLETS

*kanace ‘Mugil spp.’
PFJ *kanace
PPN *kanake
ROT ?anasi
PNV *kanace
PMP *kanasay (B80a)

*kava ‘Liza vaigensis, diamond-scaled mullet’
PFJ *kava
PPN *kafa

PM C *karafa
PEO *kaRava (G90)

*kavakava ‘juvenile Liza vaigensis’
PFJ *kavakava
PPN *ka'akafa (TOK, PUK, MVA)

Possible parallel development.

*?aua ‘juvenile or small species of mullet’
PPN *?aua
ROT aua
PEO *?aRu a (G90)

*je?evo(ou) ‘juvenile mullet’
PFJ *sevou
PPN *te?efō (TON)

3.43 SPHYRAENIDAE: BARRACUDAS

*?ono ‘Sphyraena barracuda’
PFJ *ogo
PPN *?ono
ROT ogo
PSS *ono

The irregular change of *n to /g/ is a shared innovation of Fijian and Rotuman.

*motomoto ‘Sphyraena sp.’
PFJ *motomoto
PPN *motomoto

The PPN reconstruction is based on EUV motomoto and MAE motomoto ‘S. bleekeri’. Perhaps related to PCP *moto ‘spear’ (see next item).
*(sj)ao*(sj)ao 'small Sphyraena'
PFJ *sásā
PPN *(st)ao*(st)ao

Probably derived from PCP *jaojao ‘slender’, itself related to PCP *jao ‘spear’. The PPN reconstruction is based on EUV *saosao ‘juvenile Sphyraena sp.’, SAM *saosao, TOK *haohao ‘S. forsteri’, TIK *saosao ‘juvenile Sphyraena sp.’, TUV *taotao ‘S. forsteri’. Rotuman *saosao is probably a Polynesian loan. TAH ti?atao appears to be an innovation formed from ti?a ‘straight’ and tao ‘spear’. The Tuvaluan form may be due to such analogy. It is remarkable that PCP *j should become PPN *t in ‘spear’ but PPN *s in this item.

3.44 POLYNEMIDAE: THREADFINS

3.45 LABRIDAE: WRASSES

*tagava ‘Cheilinus undulatus’
PFJ *tagava
PPN *tagafa (TON, SAM)
ROT *fahaga

GIT tagavaru

Rotuman shows metathesis.

*dradravi ‘medium-sized Cheilinus’
PFJ *dradravi
PPN *lalafi

*kawakawa ‘Labridae sp.’
PPN *kavakava ‘Epibulus, Bodianus’
ROT *awa ‘k.o. brownish fish’

PMC *kawakawa (WOL *xawexaw ‘Chlorurus spp.’)
PSS (ARO *a?awa ‘blenny’)

The PPN reconstruction is based only on Eastern Polynesian forms. If this reconstruction is valid, then the meaning ‘Therapon jarbua’, which is assignable to PPN by virtue of reflexes in Tongan, East Uvean and Samoan, must be an innovation which spread after the break-up of PPN.

*m(ae)rari ‘Novaculichthys’
PPN *m(ae)rari ‘+ Labridae’
ROT *marari

PMC *merari ‘Labridae sp.’

The PPN reconstruction is based on PNP *m(o)lali ‘wrasse sp.’ and TON *meai ‘k.o. fish, rather like parrotfish’.
labe ‘Labridae spp.’
PFJ  labe ‘Coris, Anampses, Halichoeres, Novaculichthys’
PPN  labe (SAM ‘Thalassoma’, TUV ‘Thalassoma’, NUK lapelapeuli, TIK rape, MAE rape)
PSS  labe ‘weak’
ILK lampay ‘weak’
tuvu ‘Labridae sp.’
PFJ  tuvu ‘Coris aygula’
PPN  tuvu

The PPN reconstruction is based on TON tuvu ‘Thalassoma’, SAM tuvu ‘k.o. fish’, and KAP tuhu ‘k.o. fish’; cf. EUV tuvu ‘Scarus venosus’ (misidentification?)

3.46 SCARIDAE: PARROTFISHES

mami ‘Bolbometopon’
ROT mami

PMC  mami ‘k.o. fish’ (PUL ‘large, perhaps wrasse’)
PMP  mamin ‘k.o. wrasse’ (PAL maml ‘Cheilinus undulatus’)

uluru ‘large Scarus sp. with hump on head’
PFJ  uluru ‘S. gibbus’
PPN  uluru(rl)ua ‘parrotfish with large humped head, probably Chlorurus microrhinos’ (REN)

Strong likelihood of parallel development: *ulu ‘head’ + *rua ‘two’.

ulavi ‘Scarus harid’
PFJ  ulavi
PPN  ulavi

PMC  ulafi ‘k.o. fish’ (KIR unai ‘Scarus ghobban’)
The PPN reconstruction is based on EUV ulafi ‘S. brevifilis’, EFU ulafi, TOK ulafi, TUV ulafi, KAP, NUK ulahi, TIK urafi ‘Scarus sp.’

ma(r)ega ‘blue Scarus sp.’
PPN  ma(ln)ega

PSS (BRW marega, BRE, ARO mariga)
The PPN reconstruction is based on, inter alia, TON menega, NIU monega, NTP menega ‘Scarus jonesi’, KAP melege ‘k.o. large parrotfish’, NUK manega, MVA, TUA manega ‘S. gibbus’, PUK mānega ‘big blue parrotfish’, RAP mamariga ‘S. ghobban’.

kam(ou)tu ‘female Scarus sp.’
PFJ  kāmotu ‘Scarus sordidus, female’
PPN  kamutu

The PPN reconstruction is based on TON kamutu, TOK kāmutu ‘S. jonesi female’.
*qil(iu) 'Scarus sp.'
PFJ *qilu 'S. chlorodon, niger'

PON kilikil

*bobo 'Scarus sp.'
PFJ *bobo 'S. sordidus'
PPN *popo (MAE 'small parrotfish')

*g(ou)va, *v(ou)ga 'Scarus sp.'
PPN (SAM *fuga fuga)
ROT goahgoha

*bōsē 'Scarus sp.'
PFJ *bōsē
PPN (NTP *pōsē, PUK *mōyē 'k.o. wrasse')

Possibly Fijian loan in Niuatoputapu, in which case PUK mōyē points to PPN *mōsē, another instance of the correspondence noted in section 3.32, where Fijian initial /b/ corresponds with PPN *m.

3.47 MUGILOIDIDAE: SANDPERCHES

Fijian ikotokotonivōsai and PNP *takoto (EUV, SAM), although evidently similar, are both independently derived from the verb meaning 'lie down', which is all this fish does.

3.48 BLENNIIDAE: BLENNIES

*manoko 'Blenniidae'
PFJ *m(ai)noko
PPN *manoko

Rotuman manoko 'Periophthalmus' is a Polynesian loan. The PPN reconstruction is based on EFU manoko 'k.o. fish', SAM mano'o, NUK manoko 'Gobiidae', REN manoko; contrast with EUV panoko, TIK panoko, MAO panoko 'k.o. fish', RAR panako 'k.o. small fish like minnow', MIA panako, EAS pāroko, MQN pāoko, HAW pāo?o.

*lōkuya 'Salarias'
PFJ *lōkuca
PPN *(o)ku kua

The PPN reconstruction is based on TON lōkua and NIU lākua.

*t(a,i)drae 'Periophthalmus, mudskipper'
PFJ *tidrai
PPN *talae

PPN *talae is based on TON telae 'k.o. fish', SAM talae, TOK tālau. The PCP is not a very firm reconstruction.
3.49 GOBIIDAE: GOBIES

*cigana 'whitebait'
PFJ *cigana
PPN *(h)inaga
ROV zigana

*bakovu 'Gobiidae'
PFJ *bakovu
PPN *pakofu
PSS *baxovu 'k.o. mud fish'

3.50 ELEOTRIDAE: SLEEPERS

*(?)uv(iu) 'Eleotridae'
PFJ *uvi
PPN (MAE *ufu 'blenny')

3.51 ZANCLIDAE: MOORISH IDOLS

Fijian laca and Rotuman laelae are probably independently derived from the respective words for 'sail', laca and lae.

3.52 ACANTHURIDAE: SURGEONFISHES AND UNICORNFISHES

*via 'Zebrasoma veliferum' (G90)
PFJ *via
POC *viRa
PAL bise?

As noted in Geraghty (1990:78), this name is derived from *viRa 'Alocasia, swamp taro', which also is unpalatably acid unless the skin is carefully removed. An identical development is found in Rotuman, where ?apea means both 'swamp taro' and 'Zebrasoma veliferum'.

*masa 'Zebrasoma scopas'
PFJ *masa
PPN *ma(h)s)a

*ma?eto 'Ctenochaetus'
PFJ *meto
PPN *ma?ito
ROT vaefa 'Acanthurus triostegus'

PNV *ma?eto 'black' (also Paama nameto 'k.o. black fish')
PSS (LAU maeto 'k.o. surgeonfish')

The cognacy of the Rotuman is in some doubt because of the irregular initial and the specific definition, though the final vowel is regular. The vowel change in Fijian is also regular (Geraghty & Pawley 1981). It is remarkable that the *i of POC *ma?ito 'black' has been
retained as such in this etymon in PPN, but lowered to *e in PSS, PNV, Fijian, and Rotuman. (See also remarks under *(bp)olo, next item.)

*(bp)olo ‘Ctenochaetus’

ROT polo

PSS *(bp)olo (LAU ‘k.o. small black surgeonfish’)

REN pogo ‘A. blochii’ [= A. mata] is clearly related, but there is no way of determining whether the word is Polynesian or a Solomons loan.

*pone ‘Acanthurus nigrofuscus’

PFJ *pone

PPN *pone ‘small black Acanthurus spp.’

Probably a Polynesian loan in Fiji, where it is confined to Lau. This may be the Polynesian reflex of PCP *(bp)olo (above), in which case the apparent Rennellese reflex is a Solomons loan.

*(cs)abi ‘Acanthurus guttatus’

PFJ *(cs)abi

PPN *sapi

KIR ripa ‘A. gahhm’ is probably cognate, but it is not clear which of the two is metathesised.

*balagi ‘Acanthurus xanthopterus’

PFJ *balagi

PPN *palagi

PMC *pwilagi ‘k.o. surgeonfish’

*manini ‘Acanthurus triostegus’

PFJ *manini

PPN *manini

The Fijian reflex is confined to northern Vanualevu and Lau, so it is possible, but by no means certain, that it is a Polynesian loan.

*borava ‘Acanthurus lineatus’

ROT poraha

PSS *belava (TMB belafa, LGU belava, ARO biraha)

*tusi ‘Acanthurus sp.’

PFJ *tusi ‘A. lineatus’

PPN *tusi ‘A. olivaceus’ (TAH, MQS, MQN)

Note also SAM tusia ‘k.o. fish’. Possible parallel development from *tusi ‘stripe’.

*?avalī ‘Acanthurus sp.’

PFJ *yavalī ‘A. gahhm’

PPN *?afali

ROT alahi ‘k.o. fish’

The Rotuman is metathesised.
NOTE: The members of the *Naso* genus of this family differ in having a fixed rather than retractable spine on either side of the base of the tail.

*ʔume 'Naso unicornis'*
PFJ *ume ' + N. herrei'  
PPN *ʔume ' + Naso spp.'

PSS *ume  
PAL ?um  
*tā 'Naso unicornis'  
PFJ *tā  
PEO *taRa (G90)  
CHM tataga?  

Although this comparison is formally impeccable, *ʔume is far more widely attested; these forms may have derived independently from *taRa ‘chop, slash’ with reference to the sharp peduncular plates.

*ʔama(cs)ima(cs)i 'Naso sp.'
PFJ *tā/ma(cs)ima(cs)i 'N. brevirostris, hexacanthus'
PPN *ʔume/masimasi 'N. vlamigii' (SAM)

### 3.53 Siganidae: Rabbit-Fishes

*(kq)ito 'Siganus punctatus'
PFJ *kito 'S. chrysospilos'  
PPN *kito  
ROT kifo 'S. rostratus'  
CHM hiteng 'S. punctatus'  
PWMP *kiteng 'k.o. marine fish with venomous dorsal spines' (B80a)

The PPN reconstruction is based on SAM tito 'S. punctatus' (*k > t irregular), TUA kito 'Epinephelus microdon', and RAP kito 'E. tuamotensis'. The Epinephelidae resemble the Siganidae in having dangerous spines. Rotuman k points to PCP *q rather than *k.

*volaca 'Siganus vermiculatus'
PFJ *volaca  
PSS *v(ao)la(cs)a (LAU (Fox 1974) folata 'k.o. fish', (Akimichi 1978) falata 'Siganus sp.', STC farata 'S. rostratus')  
*ma?awa 'Siganus rostratus'  
PFJ *māyawa  
PPN *ma?awa  

The PPN reconstruction, based on Tongan and Emae, corresponds well with the Fijian, where intervocalic glottal stop became y under as yet unspecified conditions. There are however intriguing developments within Polynesian, with *ʔ realised as e in Tokelauan and i in Tuvaluan, and as l in Samoan and in Eastern Polynesian. If Ponapean mār 'S. puellus' is related, the PEO may have been something like *ma?aRua. Note also the similarity to PPN
*pa?aua ‘Siganus spinus’, and its irregular Tahitian reflex pa?auara. For the irregular vowel length of the Fijian reflex, see note under *?atu (section 3.24).

*rō ‘juvenile Siganus’

PPN *rō

ROT rō

The Rotuman may be a Polynesian loan (in which case this reconstruction is not valid for PCP). The PPN reconstruction is based on TON ō ‘S. vermiculatus’, EUV ō, SAM /io ‘Siganus sp.’, TOK lōtalā, TIK ō ‘S. rostratus, punctatus’. Note that Tikopia shows Tongic loss of *r.

3.54 GEMPLYLIDAE: SNAKE MACKERELS

3.55 SCOMBRIDAE: MACKERELS AND TUNAS

*?atu ‘Katsuwonus pelamis, skipjack tuna’

PFJ *yatu

PPN *?atu

PSS *atu

PMC *atu

Rotuman ?atu is a Polynesian loan.

*taku(ao) ‘Thunnus albacores’

PPN *taku(ao) ‘+ T. alalunga’

PMC *takuV

*gākon(ao) ‘k.o. large tuna’

PFJ *gākona ‘Neothunnus macropterus’

PPN *gākono (SAM,TOK)

*tagī ‘k.o. pelagic fish’ (G90)

PPN *tagī ‘Gymnosarda’

PMC *tagirī ‘yellowfin tuna’

PAN *tagirī ‘k.o. fish’ (B72c)

There is doubt about the PPN form, as it is reflected only in Samoan and Nukuoro, and PPN *walu ‘Gymnosarda’ is well attested. Since Kiribati loses PMC *r, a loan from the expected Kiribati form would be a likely explanation, but the attested Kiribati form is the unexpected tani.

*walu ‘k.o. pelagic fish’

PFJ *walu ‘Scomberomorus’

PPN *walu ‘Gymnosarda’

PMC (PON weliwel ‘tuna’).
3.56 ISTIOPHORIDAE AND XIPHIIDAE: SWORDFISHES AND BILLFISHES

*sakula(y)a 'swordfish, sailfish' (G90)
PFJ *sakula(y)a
PPN *sakulā
PMC *sakulāra 'swordfish, marlin'
PMP *sakulayaR 'swordfish, sailfish' (B80a)

3.57 PLEURONECTIFORMES (BOTHIDAE): FLATFISH

*(y)ali 'flatfish'
PPN *ali 'Bothus, flounder'
AMB (al)ali 'halibut, flounder' (B76b)
Fijian lālali 'large flounder' may be related.

3.58 BALISTIDAE: TRIGGERFISHES

*cumu 'Balistoidei, triggerfish'
PFJ *cumu
PPN *sumu 'smaller taxa', *humu 'larger taxa, Balistoides viridescens, Pseudobalistes flavimarginatus'
ROT sumi
PNV (MTA sumut 'k.o. fish')
MTU dumu 'k.o. fish'
PAL tung 'triggerfish'
*qwau 'large Balistoidei'
PFJ *qwau
PSS *balubalu
POC *baRu 'triggerfish'

The derivation of PFJ *q(w) from POC *b is not entirely regular, but paralleled in, for example, qo 'pig' < *boRo 'domesticated pig', and cf. PNV *tibwa 'short blunt arrow', PFJ *i-tiqa 'short blunt spear thrown in game'.

*i(?)oli(?)o 'large Balistoidei'
PFJ *iolio 'Pseudobalistes flavimarginatus'
ROT iolio 'Balistoides viridescens'
PMC *iolio 'k.o. triggerfish' (PON, MOK lioli; KIR nuonuo 'Balistes fuscus')
3.59 MONACANTHIDAE: FILEFISHES

3.60 OSTRACIONTIDAE: TRUNKFISHES

*qwoaqwoq ‘Ostracion’
PFJ *qwoaqwā
ROT kaokao

The vowel correspondence is regular (Geraghty & Pawley 1981).

*moa(moa) ‘Ostracion’
PFJ *moamoā
PPN *moa(moa)
ROT moa

The Rotuman may be a Polynesian loan, though all the usual Polynesian donor languages show a reduplicated form moamoā (TON mōмоa). There is a possibility of parallel development, an outstanding characteristic of this fish being its resemblance in taste and texture to chicken, PCP *moa or *toa (cf. next).

*toa ‘Ostracion’
PFJ *toa
PSO *to

3.61 TETRAODONTIDAE: PUFFERS

*jexejexe ‘Arothron’ (G86)
PFJ *sekeseki
PPN *te?ete?e

*sumusumu ‘Arothron’
PFJ *sumusumu
PPN *musumusu (EUV)

The likelihood of borrowing is remote, both because of the metathesis, and because Fijian sumusumu is not found in parts of Fiji bordering on Polynesia. PCP *sumusumu is reconstructed rather than *musumusu because of the possible association with PPN *kisumu ‘rat’, Arothronidae being frequently associated with rats because of their facial appearance.

3.62 DIODONTIDAE: PORCUPINE FISHES

*tautu ‘Diodon sp.’
PFJ *tautu
PPN *tautu
ROT faufu

PNV *ta(r)utu (URI daut)
PEO *taRutu (G90)

In the South-East Solomons, Lau au shows the loss of *R before high vowels discussed in Geraghty (1990:84).
3.63 CETACEANS

*tavura?at 'whale'
PFJ (*tavuto)
PPN *tal(iou)ra?at
PNV *tav(iu)ra?at

3.64 CEPHALOPODS

*kuita 'octopus'
PFJ *kuita
PNV *kuRita 'squid'
PMC *kuita
*veke 'octopus'
PPN *feke
ROT he?e

The replacement of *kuita by *veke is a shared innovation of Rotuman and Polynesian.

*nū 'squid'
PFJ *kuita/nū
PPN *gū/feke
ROT nū
PMC *nu(cs)o
PSS *nuco
CHM nosnos, nosngos

3.65 INDETERMINATE

*bakewa 'k.o. fish that accompanies sharks'
PFJ *bäkewa 'Echeneis'
PPN *pakewa 'Carangoides ferdau'
PMC *pakewa 'shark'
PSS *baxewa 'shark'
PNV *bake(ao) 'shark'

The PPN reconstruction does not specifically refer to Naucrates ductor, the pilot fish, but they belong to the same family. For the irregular length in the Fijian reflex, see under *?atule (section 3.24).

*qio 'k.o. large fish'
PFJ *qiō, *qeo 'shark'
PNV *qio 'whale, dolphin'
PSS *kirio 'porpoise'
PMC *kua 'porpoise'
*drava 'k.o. small freshwater fish'
PFJ *drava 'Kuhlia'
PPN *(ri)lafa (SAM lafa 'Ambassis')
*(bp)uma 'k.o. larger schooling inshore fish'
PFJ *bima 'medium-sized Mugil spp.'
PSS *buma 'Selar'
*vo(?)o 'k.o. small fish'
PFJ *vō 'Eleotridae'
PPN *(fo(?)o

The PPN reconstruction is based on SAM fō 'Apogon', PUK wō 'k.o. herring-like fish', LUA hō 'k.o. small fish', SIK hō 'k.o. fish', TAK fō 'k.o. small fish'.

*reve 'k.o. small fish'
PFJ *reve 'Mesopristes kneri'
PSS *(lr)efe

The PPN reconstruction is based on TAH rehe 'k.o. fish' and MAO rehe 'greyling'.

*(cs)(iu)gar(ei) 'k.o. small reef fish'
PPN *sugale 'Labridae spp.'

PMC *sigari 'Gnathodentex'

*vua- 'juvenile (fish)'
PFJ *vuavua- 'juvenile (Epinephelidae)'
PPN *fua(fua) 'juvenile Mugil'

APPENDIX: ABBREVIATIONS OF LANGUAGE NAMES

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<th>LAU</th>
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ARCHAEOLOGICAL PROBLEMS WITH THE USE OF LINGUISTIC EVIDENCE IN THE RECONSTRUCTION OF RANK, STATUS AND SOCIAL ORGANISATION IN ANCESTRAL POLYNESIAN SOCIETY

R.C. GREEN

1. INTRODUCTION

Two recent books by archaeologists in Europe exemplify a renewed interest in the long-standing problems of how to address the intersection of historical linguistics and archaeology. Their focus is on Indo-European, fundamentally a linguistic concept, but the methodological problems are more general and some of the issues raised could equally apply to Austronesian or Oceanic languages and archaeology in the Pacific. One book is Colin Renfrew’s Archaeology and language: the puzzle of Indo-European origins (1987) and the other is J.P. Mallory’s In search of the Indo-Europeans: language, archaeology and myth (1989). No two books could be more different, despite dealing with the same general problem. Renfrew’s book was intended to be critical of much that had gone before, and in offering a new ‘solution’, controversial. Both linguists (Greenberg 1988:1029; Baldi 1988:447) and archaeologists (Gimbutas 1988; Lamberg-Karlovsky 1988) have condemned and dismissed it as unsound.

As Mallory (1989:8) indicates, Renfrew’s “latest work is very much a challenge to the conventional wisdom”; in contrast, Mallory regards his own work “to be in the general mainstream of this ‘conventional wisdom’”. That is how I too would judge these two offerings. Nevertheless, I have great sympathy with Renfrew (1987:3) when he states “this book sets out to argue...that archaeologists have, with a few notable exceptions, failed in recent years to take adequate account of the linguistic evidence in building up a picture of the past”. My view is that archaeologists ought to take full account of such evidence. It explains my endeavours in this field and my presence among what is largely a gathering of those interested in the results of Austronesian historical linguistics. I can assure you, however, that my view is quite the opposite of many (I would say a majority) of Pacific archaeologists who regret that linguistic concerns have become a part of the equation in the reconstruction of the culture history of the area. As Renfrew (1987:5) observes “linguistic archaeology earned itself a bad name, then, from some of the writings of the 1920s and 1930s”. In the view of archaeologists in the Pacific this situation continues, because of its conventional practice by a very few archaeologists such as Peter Bellwood, Matthew Spriggs and myself (cf. Terrell 1986:42-64, 247-256; Kennedy 1990).

Additions or corrections to this paper have been suggested by symposium colleagues, members of several seminars in which it was given and Valerie Green. Thanks go to Dorothy Brown for help in preliminary editing and word-processing.

Linguists too have sometimes commented on the current situation and a return to the "position that prehistoric linguistic construction should not be related to archaeological findings" (Lehmann 1987:72), a view perhaps held more strongly in the USA than elsewhere (Diebold 1987:61) but certainly not unknown in the Pacific (Welsch et al. 1992). Diebold (1987:19-20) in his overview of the potential of linguistics to contribute to prehistory puts the matter fairly succinctly:

Unlike the more cordial interdependence which has long characterized the relations between classical philology and classical-historical archaeology, there exists a chronic alienation between prehistorically (especially anthropologically) oriented archaeology and those historical comparative linguistic ventures that are concerned with (P)IE prehistory. My claim is actually a masterpiece of meiosis, for experience suggests that 'mutual contempt' more accurately depicts the climate.

One reason for the lack of useful dialogue he believes "is that neither is well acquainted with the theoretical and methodological arsenal deployed but not revealed by the other" (Diebold 1987:21). This sentiment too finds direct echoes in statements of a Pacific linguist on the same theme "that if we want to use the other fellow's last we had better know exactly what it is good for" (Biggs 1972:143; see also Spoehr 1968:143). My concern, then, is to demonstrate that archaeologists who do attempt to control the technical arsenal of historical linguistics may yet turn out syntheses in Oceania prehistory informed by the results of both disciplines.

This paper is ultimately concerned with rank, status, social organisation, stratification, and segmentation as it may be reflected in Ancestral Polynesian Society (APS) both linguistically and archaeologically. As the following quote from Renfrew indicates, such problems are now of common concern to archaeologists and they sometimes draw on linguistic evidence as support for their views. Kirch's (1984:53-67) reconstruction of APS serves as an Oceanic example. That archaeologists can successfully deal with such matters when they have the right evidence is obvious from the settlement pattern study of the inland 'Opunohu Valley in Mo'orea, French Polynesia (Green et al. 1967; Descantes 1990), or Kawela on the island of Moloka'i in Hawaii (Weisler & Kirch 1985). Thus, as Renfrew (1987:5) says:

Archaeology has moved on from its preoccupation with races, ethnic groups and prehistoric migrations. It has learnt to speak with greater authority and accuracy about the ecology of past societies, their technology, their economic basis and their social organization. Now it is beginning to interest itself in the ideology of early communities: their religions, the way they expressed rank, status and group identity. The question of language is important here, and we can approach it anew; abandoning some of the old preconceptions.

2. THE QUESTION OF MEANING

What are the archaeological objections to the use of linguistic evidence in historical reconstructions by archaeologists? Largely they seem to revolve around the meaning linguists assign to various reconstructed lexical forms or etymon. This quote from Renfrew (1987:260) is typical:
It is difficult, therefore, to learn a great deal through the methods of vocabulary analysis about the social institutions of those groups speaking an early form of Indo-European before this differentiated into different language families. Our problem is not simply one of vocabulary change, it is also one of changes of meaning. Yet it must be admitted that looking through pages of Benveniste’s major work one does indeed find a rich vocabulary of words which undoubtedly have common roots.

One could substitute Austronesian, Oceanic, or Polynesian for Indo-European, and linguists such as Blust, Pawley or Biggs for Benveniste and one would have a typical Pacific archaeological viewpoint. The same applies to the following quote (Renfrew 1987:18):

In my view, however, there should be a fundamental re-examination of the foundations of this theory. One important question is the extent to which it is legitimate to reconstruct a Proto-Indo-European language, drawing upon the cognate forms of the words in the various Indo-European languages that are known. Certainly it is questionable whether the nouns (for linguistic palaeontologists make little use of verbs or adjectives) can legitimately be used in the way advocated by Pictet and by Schrader to create an inventory, as it were, of the Urheimat, the original homeland of these Proto-Indo-Europeans.

Put more bluntly, as Renfrew (1987:86) does, “the methods of comparative linguistics have much to offer in the study of these processes, but the construction of a protolexi con may not be their most useful contribution”. He (1987:77) refers to the “lure of the protolexi con” and then, in the pages that follow, he disparages the utility of “the method of linguistic palaeontology, as it was grandiosely termed”. Mallory (1989:275) effectively deals in one footnote with Renfrew’s two main claims (later borrowings, changes in meaning) against the historical linguists’ ability to reconstruct a protolexi con, and more particularly the meanings to be associated with each of the various etyma. His view is that Renfrew’s discussion fails to “discredit the entire method”. Rather there are well-known problems which have been greatly overstated and “historical linguists are not really so hopelessly lost as Renfrew’s discussion seems to portray them” (Mallory 1989:275). Diebold (1987) presents a theoretical and methodologically more reasoned discussion of what kinds of prehistory have proved possible using linguistic evidence.

However, to show that Renfrew’s views are not really all that atypical, and raise issues entirely germane to the APS problem under consideration here, I extract a long quote from Sutton (1990:668):

Recently, lexical reconstructions have been used – I believe wrongly – by Kirch (1984:62-69), to support the notion that ‘Ancestral Polynesian Society had already developed the institution of hereditary chieftainship’ which was taken to islands throughout Polynesia where it underwent evolutionary change, although only at the sub-specific level...

It is clear that chiefdoms varied fundamentally between societies, and that they changed rapidly within particular societies. Therefore, the assumption that the existence of particular lexical items in a protolanguage is sufficient indication of the political system which operated during the use of that language is seriously flawed. Dyen and Aberle put the same points with regard to kinship, when they argue that ‘A kinship system can be regarded as composed of two correlated
systems: a system of kinship terminology and a system of behaviors that are patterned in relation to the terminological system. We know of no way in which we can rigorously infer the kind of behavior directly, but it is generally regarded as possible to reconstruct the terminology in large part (1974:7).

Kirch’s (1984) error in dealing with the lexical material has been to assume that the status or kin categories identified in lexical reconstructions have operationally specific meanings. More correctly, the reconstructions are particularly valuable because they define the principles of sociopolitical differentiation which are embedded in the Proto-Polynesian and Proto-Oceanic languages. These express the axes around which transformation could and did occur within descendant societies. Those axes are descent, filiation, age, gender and achievement (Pawley 1982). Their number and the fact that they affect all aspects of social and cultural life help explain the rapidity with which sociocultural change occurred in Polynesian societies, both prior to and following European contact. Green’s (1986) use of reconstructed Proto-Polynesian lexicons in his ‘triangulation strategy’ for the reconstruction of ‘Ancestral Polynesian structural categories and social and material manifestations’ is also based on the incorrect assumption that protolexemes have specific, operationally meaningful connotations. Paradoxically, Green (1986:50) refers to the Dyen and Aberle (1974) study cited above as the basis of his view that ‘only in historical linguistics, with its explicit comparative theoretical framework based on the well-established principle of the regularity of sound change, has historical reconstruction continued without serious challenge’.

In practice, however, chief (*'ariki in Proto-Polynesian; derived from *qa-lapa and *qa-diki [Pawley 1982] or *qa-adiki in Proto-Oceanic [Lichtenberk 1986] will mean different things in different social and cultural contexts. This point applies to most of the Proto-Polynesian reconstructions relating to kin terms, social statuses and social groups listed by Kirch (1984, Table 6) and to Green’s (1986:52) characterisation of Ancestral Polynesian Society as ‘some form of incipient chiefdom from its initial stages’.

While Sutton, by drawing on the somewhat out of context quotation above, tends to imply that I saw no difficulty with either the reconstruction of the etymon or its meaning, that is not what was actually written. Rather in that article, I too, as an archaeologist, found the greatest difficulty to be the meaning “glosses” which are assigned to lexical items by many historical linguists, as evidenced by the following quotation (Green 1986b:51):

The second approach has only recently been applied in Oceania. It is based on reconstructions of the lexicons of proto-languages using the comparative method of historical linguistics. For Proto-Polynesian the lexicon now numbers around 3000 items, for Proto-Oceanic nearly 2000. In this strategy the reconstruction of the proto-forms is more certain than their presumed semantic meanings. Regularity of sound change and rules for the same, combined with a subgrouping hypothesis, yield relatively secure phonemic shapes for the reconstruction obtainable from a given cognate set. However, unless the meanings in the set are highly uniform, some kind of what Dyen (ms.) calls a “semantic history hypothesis” has to be formulated to identify the original content of the semantic category and account for the range of meanings that has
subsequently developed in each of the daughter languages (cf. Dyen and Aberle 1974:15-22 for some formal procedural methods). In the Polynesian and Oceanic subgroups of Austronesian, the establishment of the lexical forms for the proto-language has been fairly well advanced by Biggs (1979, with subsequent additions) and by Grace (1969), Blust (1972a,b), Lincoln (1979), and others. However, sophisticated semantic history hypothesis identifying the original meanings of many of the terms are lacking. Rather, the items judged to be cognate are identified only by very loose or general meaning glosses. Still, for Oceania, following some isolated studies of specific areas like kinship, Pawley (1982a,b, in press), his students, and some others (Clark 1982) have begun to explore this problem for a number of discrete linguistic domains such as terms for people, for fish, for gardening, or for birds.

Like Sutton, another archaeologist (Dye 1987:445-446) in commenting on an article by Kirch and Green, writes:

A similar note of caution should be voiced over the weight placed on semantic values assigned to reconstructed lexical forms in characterizing “ancestral Polynesian society.” The *Wörter und Sachen* method works best where the denotata of reconstructed lexical forms are material objects and becomes intractable when the “thing” referred to is a social relation structured by a complex of inter-dependent rights and duties. A case in point is the claim, based on linguistic data that have since been questioned (Lichtenberk 1986), that the institution of hereditary chief was part of “ancestral Polynesian society”. The term *‘ariki* is securely reconstructed for Proto-Polynesian, but the semantic value assigned it is modeled on the rights, duties, and modes of succession associated with chiefs of contact-era societies in full land situations. Since sociopolitical power in contact-era Polynesia was rooted in some degree of control over access to land, could the rights and duties of an *‘ariki* in a “propagule” of fewer than 100 persons on an island covered with virgin forest have been comparable to those of a contact-era chief? This is an important issue in Polynesian prehistory, and the authors should be commended for attacking it with synchronic linguistic data. Diachronic archaeological data will contribute to an understanding of social and political change in prehistoric Polynesia when investigations focus on the material preconditions for establishing specific sets of social relations...

The issue then is reasonably clearly delineated. Archaeologists might just be able to use linguistic protolexicons as evidence in their cultural historical reconstructions of the past, if they limit themselves to environments, plants, animals, tools and other material objects, though Renfrew would even deny them that. But when it comes to their use in reconstructing “ancestral Polynesian society”, then the project becomes intractable if not misleading, at least in the opinion of a great many archaeologists. One objective here is to explore how well founded is this viewpoint.
3. THE VIEWS OF DYEN AND BLUST ON PROCEDURES FOR MEANING RECONSTRUCTION

Debate on how to reconstruct meaning is not confined to archaeologists. Linguists too are not entirely agreed as to how one should proceed when assigning definitions to the etyma in lexical or semantic reconstruction. On this subject I have found the discussions of these matters by both Dyen (n.d.) and Blust (1987a) instructive. (Note, however, that Blust draws upon Dyen and Aberle (1974) for his description of their methodology, not the unpublished commentary of Dyen (n.d.) which concerns procedures adopted in a previous paper by Blust (1980b).) As Diebold (1987:35) indicates “reconstruction of early historical – or proto – meanings demands as much care as the reconstruction of proto-form”.

For the purpose of discussion Blust (1987a:81) adopts the distinction between lexical reconstruction and semantic reconstruction – “two terms that otherwise appear to be used interchangeably in the literature of historical linguistics”. Here he may well be right with respect to current practice in the Pacific, but as is indicated below, the distinction is an old one in historical linguistics attached to some rather forbidding terminology little used anymore in English-language writings (Diebold 1987:35, fn.13). Lexical reconstruction, following the procedures set out by Dyen (n.d.) or Dyen and Aberle (1974), asks the question: what was the proto-morpheme which probably meant ‘X’? So far as one can tell Dyen regards such techniques of lexical reconstruction as not only providing a more rigorous and replicable methodology, but also one that employs a more formalised and conservative treatment than any used in the more usual semantic reconstructions. The latter to Dyen (n.d.) too often result in propositions that are non-general and intuitive, and while often plausible, do not satisfactorily distinguish between a suggested hypothesis which is possible and some other that may be as likely or even more probable.

In Dyen and Aberle’s (1974:7) view then, the object of lexical reconstruction is to determine which proto-morpheme sequence had a particular meaning. One starts with the proposition that a language had a word with a particular meaning, and asks which of its reconstructable morpheme sequences most likely displayed that meaning. Thus as Blust comments “lexical reconstruction is not concerned with the reconstruction of semantic categories at all. Rather, it is concerned with the association of a reconstructed morpheme with a predetermined category of meaning” (Blust 1987a:84), “defined outside the system of the reconstructed language” (Blust 1987a:88). The German and other Indo-Europeanists called this an onomasiological query (Diebold 1987:fn.13).

Semantic reconstruction in contrast asks the question: what was the probable meaning of proto-morpheme ‘X’? It operates by establishing contrast within semantic fields. One has signification referring to semantic correspondence and value referring to the embedding of a semantic category within a larger semantic field. Thus “signification defines meaning through a reference point that is outside the system of a language, while value defines meaning through systemic coherence” (Blust 1987a:88). In Indo-European this went under the heading of a semasiology approach (Diebold 1987:fn.13). The procedures of Dyen and Aberle are concerned only with the signification of a reconstructed morpheme; they do not deal with the value of a reconstructed morpheme by attempting to infer its meaning in relation to other terms within a coexistent system.

Dyen (n.d.), in his discussion of Blust’s earlier work, introduces the term “prime semantic agreement” (PSA) where the basis “for assigning a meaning to an etymon [is] that a sameness of meaning appears between cognates belonging to members of different sub-
groups”. On the other hand, where things are more messy (as is typical) and there are differences in meaning, he refers to what many historical linguists do as “constructing a ‘semantic history hypothesis’” (SHH). This is the process whereby linguists assign to an etymon a meaning or gloss which can be reasonably regarded as having given rise to the different meanings found in the associated cognates where the several meanings were judged to cover the same general semantic field. When reading Dyen’s commentary, it was the “semantic history hypothesis” approach for which, as an archaeologist, I opted, despite Dyen’s misgivings about its lack of real rigour in determining cognation, its inherent inaccuracies and a degree of circularity. After reading Blust’s (1987a) discussion, and his example working out the terms for ‘house’, I am better able to see why it is this approach to meaning which most archaeologists will probably prefer. This method is more likely to provide the kind of former meanings and subsequent changes in them which archaeologists would be inclined to explore using their own data, rather than the limited, rather stark and still currently preserved sameness of meaning resulting from the Dyen-Aberle approach. As Diebold (1987:56) says, using emphasis: “I cannot stress enough the need for a strong diachronic semasiology. If such comes to be developed, we are going to have to revise much of the semantic information contained in our etymological canon”.

4. CAN ARCHAEOLOGY CONTRIBUTE TO THE PROBLEM?

Most archaeologists (and perhaps many linguists) don’t seem to appreciate what is required to address the intersection between historical linguistic reconstructions of protolexicons and their archaeological data. I will set out my views by using Proto Central Pacific (PCP) and Proto Polynesian (PPN) as examples. One has first to specify in tightly formulated arguments the time and place of the intersection of the two data sets.

In Indo-European such correlations have so far not proved easy, nor are the solutions uncontroversial. But as Mallory (1989:143-261) shows, careful scholarship in both fields can establish a result that is generally convincing if still to be confirmed in one instance by archaeological evidence of a demonstrable historical relationship in the expansion from the Pontic area into Central and Northern Europe. The result is certainly more plausible than anything put forward by Renfrew where the current historical linguistic evidence remains incompatible with his archaeological model. One might say something similar for Austronesian or Oceanic. Bellwood (1985,1991) and Spriggs (1989) have put forward plausible accounts for the intersection of linguistic reconstructions and the archaeological evidence for Austronesian in Island Southeast Asia and its expansion into Oceania, but these have yet to be confirmed by archaeological demonstrations acceptable to a majority of scholars. However, when one comes to the simpler and nearer-in-time case of Remote Oceanic, and especially CP and PN, even the more severe critics like Terrell (1989) and Kennedy (1990) tend to accept the equations proposed as to time and place. The expansion of Oceanic languages into Remote Oceania began circa 3,300 years ago and correlate with the Lapita cultural complex (Pawley & Green 1984; Spriggs 1984; Green 1992) and Proto Eastern Oceanic. A method for advancing these correlations was set out by Pawley and Green (1973) and the Central Pacific/Polynesian homeland part of the equation further examined in detail by Green (1981). Thus a time depth of 3,200 to 2,800 years ago correlating PCP with early Eastern Lapita assemblages would be acceptable to most scholars, with the area encompassing the Fiji-West Polynesian region as its homeland on the archaeological evidence. By 2,400 to 2,000 years ago a correlation can be established...
between PPN and culturally West Polynesian assemblages of an early type that exclude the Fijian area. By the end of that time, or more likely after a short pause, expansion began into central Eastern Polynesia.

5. HISTORICAL LINGUISTICS AND THE PHYSICAL CONTENT OF ANCESTRAL POLYNESIAN SOCIETY

Once the historical and locational intersections of the two sets of data are established, the other correlation, of course, is that of content. What strikes one immediately is the large size of the protolexicon (upwards of 3,800 items) and the limited amount of it which has potential for reflection archaeologically. Some (Pawley & Green, K. 1971; Green 1975, Table 1) have looked at environmental terms as well as a range of other domains. I have had students do exercises with material culture; other exercises have or could be done with the fish, plants or animals. Kirch (1984, Table 4) gives a typically short list of 35 items of technology and production for most of which one could argue for potential or known confirmation in the archaeological assemblages of appropriate date and age. Yet, with the best will in the world, I doubt one could produce an archaeologically well confirmed list more than 300 to 400 items long (10%). Nevertheless, a systematic exercise of this sort for PCP and PPN against the environment of Fiji-West Polynesian region and Eastern Lapita/Early Polynesian assemblages of fauna, flora, cultural features and portable artefacts would go a long way towards strengthening the proposed intersection of the historical linguistic and archaeological information.

Would these enhance and make more behaviourally operational the meanings assigned to various items in the protolexicon? I think they would. We would not just have lists of the fish (Kirch 1984, Table 5), or shellfish, or birds (Clark 1982), or plants, but indications of how they were exploited, and some better idea of what the verb 'to fish' (PPN *faangota) in this context actually meant (Clark 1991a), for as Clark shows, there was a repeated shift in the meaning of the word in Remote Oceania. Moreover, just what was in the cognised environment and given more specific names as fish, ika, and what was in the utilised environment and fished for often differs markedly. This has been brought out for Lapita contexts by Walter (1989) for the fish caught (archaeologically) and those reconstructable linguistically, while Hooper (this volume) clearly demonstrates how the economically useful fish are well marked in the Polynesian naming of certain fish species. Nonetheless, the precision or accuracy of the reconstructed meaning for each etymon at a particular time and place would vary greatly, making both sources of data useful in any full reconstruction.

Take, for example, PPN for *talo – Colocasia esculenta, in the semantic field of giant taro, Alocasia macrorrhiza – *kape, and related plants like giant swamp taro, Cyrtosperma chamissonis – pulaka, and Hong Kong or American taro – Xanthosoma spp. One can be fairly sure the proto-morpheme has the single meaning of 28 chromosome Colocasia and not some other of the related plants above. Thus Hong Kong taro is a modern borrowing in the region, *pwulaka seems to have been borrowed from Micronesia into Polynesia (Geraghty 1990:57.89) and 28 chromosome Colocasia is the domesticated ancestral type for Oceania (Matthews 1990). One can also claim that *talo falls into the category of a lexeme that exhibits an unchanging prime semantic agreement through all stages from PCP to PPN and down through other proto-languages to the various daughter languages. The strongest evidence of its presence in Ancestral Polynesian Society is from historical linguists and that will probably always remain the case. In addition, there is the possibility of identifying
appropriate starch grains as residues on early Polynesian tools ethnographically known to have been used in processing taro (cf. Loy et al. 1992). Rarely, swamps may yield pollen or parts of taro plants, or there may be contexts in which plant remains were carbonised enabling us to find fragmentary remains of the plant of appropriate date and location. Even alluvial-covered taro gardens of the right age, such as those with their planting holes known from Futuna at 900 AD, are possible (Frimigacci et al. 1988:14). But all of this will only add support to the evidence of historical linguistics for PPN *talo as meaning only Colocasia esculenta in association with a coexistent system of related (Alocasia) and non-related plants (various yams, breadfruit, several bananas) and PPN lexemes meaning to plant, to harvest, and a garden.

Another example, PPN *toki ‘adze’, suggests how archaeology might add to an understanding of what this term indicated, as well as document change, in what is again a proto-morpheme exhibiting a fairly stable prime semantic agreement through all stages from PPN down through other proto-languages to the daughter languages. Interestingly the reconstruction for PCP is *kia (Geraghty 1990:62) from PEO *kiRa and before that in POC it was *kiRam ‘adze/axe’. The last gloss is one indication of how archaeologists would expand the usual PPN linguistically assigned meaning, adze, as it is technically known in English, to also cover (in all POC languages) axes and chisels as part of the semantic category. This would be firstly on the grounds that there are no contrasting lexemes with the meaning ‘axe’ and ‘chisel’ to cover these values in PPN, PCP, PEO or other POC languages. It would also be on the archaeological grounds that the appropriate assemblages of ‘adzeheads’, while they were functionally hafted and employed dominantly as adzes in Polynesia, also functioned at times as axes and chisels. Finally because the Lapita adze kit included two kinds of axe/adzes in shell along with those in stone (Green 1991a) and because in Pohnpei, for example, ki still means ‘shell adze’ (Geraghty 1990:62), it is probable the meaning of *kia (and then *toki) always covered axe/adzes in shell as well as those in stone.

The intersection with archaeology might also indicate a physical form for the linguistically reconstructed meanings and begin to give them a more behaviourally operational content. They would be stone or shell adzes, axes and chisels of a certain type but not necessarily stone celts or steel tools. Eastern Oceanic *kiRa, for example, would as indicated above, initially link with a set of stone and shell adze/axe types firmly associated with the Lapita cultural complex from that area. A change to PPN *toki accompanies a set of morphological changes resulting in an ancestral Polynesian adze/axe kit (Green 1971) and at later stages toki in its various forms refers to still other kinds of adzes, axes and chisels typical of the different daughter languages. Moreover, inferences as to the behaviour that went into their production and use, and changes in these through time may be reconstructed through archaeology and combined with linguistic terms for such processes. Unlike *talo, what PEO *kiRa and PPN, PNP and PCE *toki meant changed through time, and archaeology, perhaps more than historical linguistics, may help to identify these shifts in referents through the construction of plausible semantic history hypotheses incorporating both sets of data.

6. HISTORICAL LINGUISTICS AND SOCIAL ASPECTS OF ANCESTRAL POLYNESIAN SOCIETY

At this point we are at last in a position to tackle what some consider an almost intractable problem, reconstructions of those aspects of Ancestral Polynesian Society which Kirch (1984:62-67) describes under the heading social relations. Currently, as he notes, “the
archaeological evidence of Ancestral Polynesian settlement patterns tells us relatively little of the nature of social groups per se" (p.62); moreover, "artifactual evidence for social status is similarly lacking" (p.63). Thus it is the linguistic evidence on which he relies to a very large degree. As was shown in the lengthy comments by Sutton and Dye (section 2), two main criticisms appear to arise among archaeologists about the use of such evidence. Sutton claims flaws in the assumption that a set of lexical reconstructions with their meanings is sufficient to identify the kind of sociopolitical system involved much less give assigned meanings any sense of operational definition. Dye is concerned with this problem, but also wonders the degree to which the rights and duties of PPN *qariki (and by implication other associated social statuses) would differ in a small colonising group. In short what kind of chiefdom would a PPN one be, if indeed it was a chiefdom.

Green too (1993) has looked at this problem in a recent review, one part of which surveys the development of sociopolitical complexity in Polynesia. As Earle (1987:288) observes, many of the societies used in a survey of sedentary prestate societies in the Americas have been called chiefdoms because of their hereditary ranking. Yet their small population sizes, often well below a thousand, would perhaps require them to be considered not as simple chiefdoms, but as ‘tribal’ variants on a local group level. Green cites Anuta as an ethnographic example, where less than 200 people occupying an island 0.4 km² in size all lived in one coastal village. It had two *ariki (chiefs), who headed up two of the four kainanga (patrilineal units), the other two having only appointed formal leaders (Feinberg 1981:134-192). The question that arises is: is this a chiefdom or is it something else?

From the daughter languages it is evident that the terms for concepts of hereditary ranking were retained and distributed throughout Polynesian societies. Thus, while they can be reconstructed linguistically and assigned to an Ancestral Polynesian society, one needs to question whether these small colonising populations using these terms should be considered local-group variants possessing terms and personages reflecting nothing more than hereditary ranking. Or are they, as I think, some form of incipient chiefdom which in time gave rise to the various and more characteristic types of simple and complex chiefdoms recorded at the time of contact.

First let us review the linguistic evidence used by Kirch (1984). His Table 6 summarises most of the better known items:

<table>
<thead>
<tr>
<th>Gloss</th>
<th>Proto-Polynesian-reconstructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Sibling kin terms</em></td>
<td><em>tuakana</em></td>
</tr>
<tr>
<td>Elder sibling, same sex</td>
<td><em>(a,e)hina</em></td>
</tr>
<tr>
<td>Younger sibling, same sex</td>
<td><em>tuanga’ane</em></td>
</tr>
<tr>
<td>Woman’s brother</td>
<td><em>taufa’ine</em></td>
</tr>
<tr>
<td>Man’s sister</td>
<td></td>
</tr>
<tr>
<td><em>Social statuses</em></td>
<td></td>
</tr>
<tr>
<td>Chief</td>
<td><em>’ariki</em></td>
</tr>
<tr>
<td>Expert, craftsman, specialist</td>
<td><em>tufunga</em></td>
</tr>
<tr>
<td>Warrior</td>
<td><em>toa</em></td>
</tr>
<tr>
<td>Seaman, navigator</td>
<td><em>tautai</em></td>
</tr>
</tbody>
</table>
### Social groups
- Corporate, land-holding descent group: *kainanga*
- Minimal descent group, household (with land): *kainga*
- Assembly of people: *fono*

### Gods, ritual, religion
- Sacred, prohibited: *tapu*
- Supernatural power: *mana*
- Deity: *‘atua*
- Spirit, soul, corpse: *‘anga’nga*
- *Piper methysticum; ceremony*: *kawa*
- To perform ritual: *fa’i*
- Offering, act of worship, remove tapu: *mori*
- Prayer: *lotu*
- *Kava bowl*: *taano’a*
- Pigment of *Curcuma domestica*: *renga*

All these lexical reconstructions and the meanings cannot be discussed here. However, sufficient interest focuses on the PPN term *qariki* to make its further discussion worthwhile. POC *qa-adiki* as a proper noun, in PPN became a common noun occurring after the definite and indefinite articles, designating a class of objects rather than a previously more descriptive personal title (son of big man? or chief?). Thus Pawley (1982:41) puts forward the semantic history hypothesis that there was a shift in the PEO meaning such that PPN *qariki* became a common noun designating “a class of people or member of that class”. Yet this must have been at an earlier stage than PPN for the meaning ‘chief’ would certainly qualify as one deriving from a prime semantic agreement within the daughter languages of Polynesian. Koskinen’s (1960) extensive comparisons of meanings assigned to this category would certainly support that interpretation, but he picked up enough in the Polynesian variations on meanings of the term to anticipate Pawley and also note its original meaning as ‘first born of the chief’ and as such one who was involved with sacred duties. This might have been its PCP and Eastern Lapita meaning, which then changed in Ancestral Polynesian Society as Pawley has indicated.

No one has mentioned a contrasting lexical reconstruction for ‘chief’ or ‘chiefly’. However, in searching for other items that might imply rank or status, I noted another possible meaning that might be assigned to the usual PPN *langi* meaning ‘sky’. The evidence for this is:

- TON *langi*: honour, glory, splendour; a burial place for the highest chiefs
- HAW *lani*: noble, royal, exalted, highborn aristocrat, to treat as chief
- RAR *rangi*: supreme in authority, highest authority power, highest chief
- MAO *rarangi*: line, rank, row (from *langi* – ‘chief’)

From this one could construct a semantic history hypothesis that in PPN while *qariki* was only just then taking on the meaning of a category designating a hereditary class of people called chief, from its previous meaning of ‘the son of a hereditary leader’, there was another term PPN *langi* meaning ‘one who was of sufficiently high rank to be honoured or treated as one in authority’. This could be supported by another term reconstructed by Pawley (1975a), PCP and PPN *sau* ‘to rule, have supreme command over a group of people; ruler, high chief’.
The comparison here is with PPN *papa, usually assigned the meaning ‘flat, hard surface’, but always in myth and ideology contrasted with *langi. For PNP, at least, one might also attempt to reconstruct another semantic meaning for it on the following information:

- **HAW papa** class, rank, grade, to put in rank in layers, file
- **RAR papa** sequence, order of succession (like a line of ancestry)
- **SAM papa** high titles and dignities
- **MAO papa** layer or course (whakapapa ‘place in layers, recite in order as in line of ancestry’)

Further searching is required, but perhaps under a SHH one might develop a claim that *papa also meant ‘to order things in succession, especially people’.

In a class considering comparative Polynesian data Judith Huntsman discussed various Polynesian terms for position or office, authority, power (both supernatural and in the sense of strength) and position (whether of status i.e. a role’s position on a scale of worthiness, or of rank i.e. one’s position or level within a status). This interested me enough to see what *PPN terms were available. For authority PPN *pule might qualify, but if so a SHH is required to explain the shift in meaning to ‘prayer’ in Eastern Polynesia. Pawley (1975a) glosses it as ‘to be in a position of authority or to appeal to authority’ (from which ‘to pray’ derives).

For position PPN *tuquranga would seem to qualify with the anthropological distinction between rank and status not easy to draw as it does not appear to be marked lexically. The evidence for this was:

- **TON tūunga** rank (position), status
- **SAM tulanga** position, station, what level you are at
- **HAW kulana** station, rank, title, position
- **RAR turanga** a site, a position (turanga-au ‘site or seat of authority with au meaning a period of tenure in office, the ruling body of power’)

That the etymon is reconstructable for PCP as well is indicated by the Fijian form turaga for chief or master, indicating that its generic meaning in PCP probably carried the sense of a position or title. In the Fijian case this developed into the specific title for chief, while in Polynesian another term *qariki filled that role. Finally, while the term for power in the supernatural sense certainly seemed to centre around PPN *mana as in Kirch’s list, one for powerful in the sense of strength was more difficult to identify. Eventually I focused on PPN *mafi on the following evidence: TON – powerful or power; EFU – hard work; NUK – strength; REN – strong, vigorous; TOK – favourite task, preferred work; HAW – strong, energetic, and MAO – work (which Biggs, Walsh and Waqa (1970) had glossed as both “powerful and hardworking”). It would seem that under a SHH, the two senses of power in English, which in Polynesia are the sacred and secular attributes of chiefs, were initially distinguished by separate lexical items.

Given the listing above already discussed by Kirch, and the additional discussion provided here, I believe it hard to maintain on the linguistic evidence that all that can be linguistically reconstructed for APS are “axes of descent, filiation, age, gender and achievement” as Sutton has claimed. Rather, one has to look within the coexistent semantic system for some form of a small scale incipient chieftdom present from the beginning. To confirm and expand on aspects of these lexical reconstructions by archaeological means is at
present not possible, and it will not be easy. Excavating objects and features that could lead to inferences of concepts such as *mana, *mafi, *pule, *tuquranga, *sau, *rangi, *qariki, *tufunga, *toa etc. will not be accomplished in the same way as those for *talo and *toki were. Areal excavations of suitable early sites are required (Green 1993). But as Renfrew says, archaeologists now have an interest in reconstructing these aspects of culture, and the intersection with linguistics in this enterprise is likely to be vital. Let us not throw the baby out with the bathwater. Or to quote Renfrew (1987:262) again:

I do not doubt that a sensitive analysis and interpretation of the shared early vocabulary, insofar as it can be constructed, of very much the kind undertaken by Benveniste, can answer some of the relevant questions. We can see now, however, that such a work of interpretation will need to make fewer prior assumptions about the general nature of that society.

7. WHAT’S IN PEOPLE’S HEADS VERSUS WHAT’S ON OR IN THE GROUND

Mallory (1989:122-123) perceptively comments “there is a sort of horrible irony in the fact that, while modern archaeologists are greatly interested in reconstructing the social system of prehistoric peoples, historical linguists offer the archaeologists such detailed reconstructions that they are still beyond archaeological retrieval even when we know what to look for”. In Indo-European the work of Dumezil and his associates is instructive. They attract much negative comment from Renfrew (1987:250-262) who denies that on the archaeological record, Proto Indo-European society could be of the complex form described from reconstructions based on much later sources. This is not unlike the view expressed by Sutton for PPN. Thus Renfrew (1987:254) questions “one of the essential foundations of the whole Dumezilien scholarship: its historical reality”. He would rather explain these as much later convergences of independent origin. Mallory (1989), on the other hand, treats these reconstructions more sensitively and with great respect. He even thinks (p.14) that there is something in them for archaeologists and goes on in some detail to offer examples of what they might expect to look for in the ground. Then wisely, I think, he concludes (p.142) as follows:

There can be little doubt that the links between the reconstructed ideology and their expressions in material culture or behaviour of a prehistoric people may be far less than we hoped for...Dumezil himself has insisted that his Indo-European civilization is one ‘of the spirit’, and that it need not be tied down to the real Proto Indo-European world. Ideal worlds of myths, one may argue, are just that, and although they may be an expression of social realities, these need never take the corporeal forms required by the archaeologist.

It is well known that the Dumezilien type of analyses of Polynesian religions and myths are equally possible (Sahlins 1985:73-104; Valeri 1985) and we might expect scholars to one day also attempt to reconstruct a PPN or PCP ancestral form. However, the message seems clear, at least to me: much of any such reconstruction may reflect only what is deemed to have gone on in people’s heads. Its realisation in the ground will probably be a rather more mundane affair. In fact, even in the realm of social relations, this same asymmetrical situation will probably also apply. Ancestral Polynesian Society on and in the ground will not look as socially differentiated and complex as the linguistic evidence implies. In my view, Renfrew
and Sutton in their archaeological modelling approach have not taken this fact sufficiently into account.
1. INTRODUCTION

This paper has two aims. The first is to present a set of reconstructions of Proto Polynesian (PPN) and Proto Nuclear Polynesian (PNP) fish names. The second, more exploratory aim is to discuss some of the problems that arise in attempting to reconstruct a taxonomic semantic domain such as this. Krupa (this volume) points out that the terms which make up a taxonomy "are notable for their maximum contextual autonomy, precision and absence of such semantic features as ambiguity, polysemy, synonymy and homonymy". Their meanings "lack modality and expressivity". One would not expect, then, that particularly intractable problems of semantic reconstruction would arise. Nevertheless, the semantic features mentioned by Krupa do sometimes occur, and also semantic shifts, particularly between co-hyponyms and in relation to hyponymous and hypernymous relations between lexemes, and can make the establishment of a proto-meaning difficult.

2. SOURCES AND METHODOLOGY

Appendix 2 contains 147 fish names, 115 of which are reconstructed at PPN level, and most of the remainder at PNP level (see Appendix 1 for abbreviations of language names). The reconstructions have been made in most cases on the basis of the distribution of the reflexes, in the light of commonly accepted subgrouping hypotheses. Consequently some must be regarded with suspicion because of the possibilities of diffusion, particularly within the central area of Tonga, Samoa and the islands closest to them. In such cases I have included a query or comment. For example, fish names found only in Tuvaluan, Tokelauan and Pukapukan or in these languages plus Eastern Polynesian languages, may not warrant a PNP reconstruction. Four names are found in Tokelauan and Pukapukan in addition to Eastern Polynesian languages; they are #22 *tupou(pou), #48 *(w)ewe, #56 *komuli and #63 *pakewa (these numbers refer to Appendix 2). Five fish names found only in Pukapukan and Eastern Polynesian are #54 *luhi, #68 *kopelu, #85 *taamule, #140 *kookili and #143 *tootara. These should be evaluated in the light of the discussion in Clark (1980) relating to Pukapukan borrowing from Eastern Polynesian languages. There is also evidence of diffusion of fish names between Kiribati, Tuvaluan, Tokelauan and Pukapukan, for

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example Kiribati kamaa, cf. Tokelauan, Tuvaluan, Pukapukan kamai ‘rainbow runner’ (#69); Kiribati baniniua, East Uvean, Tokelauan pānanua ‘barracuda’ (see note on #36); and see the discussion of palu in section 4. Fish names reconstructable only at Eastern Polynesian level are not included in this study unless they are of interest because of the above considerations or because of the particular semantic interest of the Maori reflex.

Naturally, most if not all the fish names discussed here are represented in the POLLEX files. However, this research aims at more precise species identifications than are contained in the POLLEX files, and has been carried out independently of POLLEX for the most part, although I have used the files as a source of fish names for further investigation. Some POLLEX reconstructions without species identifications, such as *mamo ‘fish, a small species’ are not included here. Several names reconstructed at PNP level in POLLEX are taken to FPN level here.

As can be surmised from the number of reconstructions, Polynesian languages have an extensive and comprehensive nomenclature for fishes. Very full inventories of fish names accompanied by reliable scientific identifications have been assembled for a number of languages, including Easter Island (Randall & Cea Egaña 1984), East Uvean (Rensch 1983), Marquesan (260 names, including many binomials, Lavondès 1977), Niuatoputapu (over 200 names, including some binomials, Dye 1983), Rapa (Randall & Sinoto 1978), Cook Islands Maori (Bacquie 1977), and Tokelauan (my own research). The papers by Dye, Lavondès and Rensch include discussions of classificatory strategies in the languages they investigate, and Dye gives close attention to the lexical structure of the Niuatoputapu fish names. These studies reveal a high degree of formal and semantic correspondence in this domain across the languages of the group, which is attributable to a comparative uniformity in the ichthyological fauna of the tropical South Pacific.

A number of the studies referred to above were done by, or with the assistance of, ichthyologists. My own work on Tokelauan, and Rensch’s (1983:59-60) on Uvean, involved working with experienced middle-aged fishermen, and referring to the colour photographs and drawings in several excellent books, in particular Bagnis et al. (1972) and Fourmanoir and Laboute (1976). In some cases actual specimens were compared with the photographs, in other cases the informants simply drew on their knowledge of the fishes.

Zoologists are inclined to adopt a cautious if not downright critical attitude to this procedure, which is adopted by many linguists and anthropologists in the field. In fact it is perfectly satisfactory for the kind of task undertaken here, for the following reasons. Firstly, many of the most important species are so very distinctive that confusion will not occur, for example the convict tang Acanthurus triostegus (PPN *manini). Secondly, the species liable to confusion are likely to be extremely closely related, with the further possibility that they are associated with different habitats. As an example, the deepwater snapper Tropidinius zonatus ‘flower snapper’ has been identified in Tahiti by Bagnis et al. (1972), where it is called paru ta’a’pe; it has also been identified in Tuvalu, by the South Pacific Commission survey, with the name palu savane. In the Niuean survey, two Tropidinius species were caught, T. zonatus and T. argyrogrammicus, both with the English vernacular name ‘flower snapper’ and the Niuean name palu heahea. A possible confusion between these two species on the part of researcher or informant in another island community is not going to invalidate the reconstructed meaning for *palu (+ modifier) of ‘Tropidinius spp., including T. zonatus’. Moreover, species can be polymorphic, different habitats leading to the development of
markedly different ecotypes. There are even, as Diebold (1985:16-18) points out, attested cases in which such an ecotype has been mistakenly identified by ichthyologists as a distinct species.

Another source of difficulty which originates with the zoologists themselves is the constant revision of fish taxonomy and nomenclature, or the use of competing classifications, accompanied by a surprising laxity in the citing of scientific synonyms. Consequently scientific names encountered by the researcher sometimes turn out to be synonyms, and not the names of different species.

3. WHAT WE KNOW ABOUT PROTO POLYNESIAN FISH NAMES

Like the studies of individual languages on which I have drawn, this investigation is concerned with the names of fishes, in the contemporary folk and zoological understanding of that term. In Polynesian languages the life-form term which includes fishes, in most cases a reflex of PPN *ika, refers also to several other marine organisms, including cetaceans, cephalopods and turtles. The decision not to extend the study to the names of these species was a purely practical one. Apart from the need to limit the scope of the study, there was also the fact that there are no detailed investigations of these other types of marine fauna on which the linguist can draw, comparable to the studies of fish names cited in this paper.

Although the present study does not claim to be exhaustive (as stated above, binomial terms are not included except in a few instances), there is reason to believe that the PPN reconstructions contained in Appendix 2 must represent a very substantial proportion of monomial fish terms in PPN. The present-day lexicons collected by Rensch in East Uvea, Dye in Niuatoputapu and myself in Tokelau contain approximately 130 monomial fish names. In all communities some names are innovations, and it is reasonable to suppose that some PPN etyma have not survived in any daughter language.

Of the 115 PPN reconstructions, 112 are primary lexemes. If we examine the list of East Uvean fish names in Rensch (1983), we find that 74 primary lexemes reflect PPN etyma; 74 out of 112 would represent a retention rate of 66%. The comparable figures for Niuatoputapu (Dye 1983) are 68 retentions, or 60.7%. In my own data for Tokelauan there are 94 retentions, or 83.9% – an extraordinarily high figure. If we hypothesise that the Proto Polynesians, like their present-day descendants, used a vocabulary of about 130 monomial fish names, the retention rates are more plausible: 60% for East Uvean, 52.3% for Niuatoputapu, and 72.3% for the Tokelauan data – close to the expected average retention rate of 70% for core vocabulary (Ross Clark, pers.comm.). It is not the practice to include fish species names in core vocabulary lists, and from this point of view the expected retention rate would be lower for fish names. On the other hand, the economic and cultural importance of fishing in Polynesian communities, especially atoll communities, suggests that

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2 I am including in this category some lexemes which are analysable into head and modifier(s), but of which the head clearly does not denote a superordinate taxon, for example *mata'italiga 'hammerhead shark'. On the other hand the binomials *fai kili and *fai manu are secondary lexemes, being hyponyms of *fai 'stingray'.

3 The higher figure for Tokelauan could indicate either a more nearly complete inventory of local fish names than in the other two studies, or the more conservative nature of the Tokelauan lexicon.
fishing terms and fish names are good candidates for inclusion in core vocabulary lists for this region. Dye comments on the conservative nature of Niutatoputapu fish nomenclature, as borne out by the fact that “[t]axa from an earlier Samoic nomenclature persist, though Tongan is now the spoken language” (Dye 1983:265).

The picture that emerges from these 115 reconstructions is one of a community which, like the earlier Lapita culture as described in Walter (1989), exploited the full range of marine habitats with appropriate fishing techniques.4 The lexicon shows a bias towards those species which are economically important, particularly in the degree of differentiation at the species level and in growth stage terms. For example, the small colourful reef fish which loom large in a tourist’s impressions of the tropical underwater environment receive scant attention in the Proto Polynesian vocabulary: *tifitifi for the numerous butterfly fishes and angelfishes (Chaetodontidae), *mutu for the equally varied damselfishes (Pomacentridae). With these we may contrast the more elaborate terminologies for the jacks (Carangidae), tunas (Scombridae) or groupers (Serranidae). These issues are discussed further in the next section.

4. SOME ISSUES IN THE SEMANTIC RECONSTRUCTION OF FISH NAMES

Speakers of Polynesian languages classify fishes on the basis of perceptual similarity for the most part. Linnaean taxonomy of fishes and other life forms is also based primarily on perceived morphological similarity. It is thus not surprising that the researcher of Polynesian fish names gets the impression of a high level of conformity between Polynesian and Linnaean categories, an impression supported by the discoveries of Bulmer (1967, 1974), Berlin et al. (1974) and others on the nature of folk taxonomies. In the discussion which follows, Polynesian fish taxonomy will be discussed as it relates to Linnaean taxonomy. This approach is not meant to imply an assumption of the superiority of Western scientific taxonomy (any more than is the presentation of the data in Appendix 2 in approximate phylogenetic order). Reference to a universally accessible naming system is necessary simply so that we can be clear which fishes we are talking about (within the above-mentioned limitations of that same naming system). English vernacular fish names exhibit so much dialectal variability as to be useless for our purposes; to take an example close to hand, the term ‘snapper’, generally associated with fishes of the family Lutjanidae, is in New Zealand applied to Chrysophrys auratus, a member of the family Sparidae.

Polynesian fish names can be divided into primary lexemes, usually consisting of one word (and also referred to as monomials), for example Tokelauan humu ‘triggerfish’ (Balistidae), and secondary lexemes (also called binomials), usually consisting of one of the primary terms plus a qualifying term, for example Tokelauan humu tuākau, literally ‘triggerfish of the sea outside the lagoon’ (Melichthys niger, black triggerfish). Many secondary lexemes could undoubtedly have been reconstructed at some level, but very few of these are included in this study.

A high proportion of Polynesian primary lexemes denote terminal taxa, that is to say they have no named hyponyms. However, this does not mean that they always denote single species. The fish taxonomies of individual Polynesian languages show the irregular

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4 For a fuller discussion the reader is referred to Walter’s paper and to the detailed description of present-day fishing ecology in Dye (1983).
relationship to scientific (Linnaean) classification which is characteristic of folk taxonomies in general (see Berlin et al. (1974) for a fuller discussion). If we take the primary lexemes as representing the 'folk-generic' or 'basic level' taxonomy, we find that these taxa do not always correspond to Linnaean genera. Instead, we have a system in which some primary lexemes correspond to the family, some to the genus, and some to species. Other terms correspond closely to English vernacular taxa embracing several families or even suborders, such as Tokelauan magō, 'shark', fai 'ray' or puhi 'eel'.

Of the 115 PPN reconstructions, it can be said with reasonable confidence that about a quarter correspond to scientific species, about a quarter to genera, and less than ten to higher level groupings. The remainder are indeterminate between family and genus, or between genus and species, for the reasons given above. This situation reflects the fact that the most striking morphological differences are often found at taxonomic levels other than the genus. It seems most likely that for any variety the folk generic term will be situated at the level of most striking perceptual salience, subject, however, to another important factor: the degree of economic importance of the species concerned. As several observers have commented (for example Dye 1983:260) species that are of little or no significance as a food source are not highly differentiated in the lexicon, for example PPN *tītītī, a term which embraces butterfly fishes (Chaetodontidae) and angelfishes (Zanclidae). Conversely, the economically very important families Scombridae and Carangidae have basic (monomial) nomenclature at the level of the biological species, with further differentiation based on growth stages.

It is usual to attribute a particular meaning to each reconstructed form, if this form-meaning association is found in the appropriate distribution in daughter languages. Often the distribution of reflexes and meanings (the 'semantic profile') allows a lexical reconstruction with a gloss of considerable generality, such as 'fish species', 'shark species', or 'kinship term'. It is convenient to reserve the term semantic reconstruction for the association of a form with a gloss of a much greater degree of specificity. In the case of Proto Polynesian fish names, reconstructions with a high degree of reliability are easily made, with glosses of a rather general kind, such as 'parrotfish' or 'Labridae sp.'. However, semantic reconstructions that consist of precise identifications at the appropriate taxonomic level pose more difficulty, because of the nature of the data on which semantic reconstruction must be based. I will discuss a number of cases which pose interesting problems of semantic reconstruction.

Let us first examine the example of the family Lutjanidae. About seven names for Lutjanids can be reconstructed at PPN level (#72 - #81). Some of these can be precisely associated with particular species: *muu, *tu, *sawane and *palu (in the latter case a group of species, of which more below). We are left with the names *fagamea, *taga, *sa(a)putu and most probably *taiwa and *tāae. The last two are found in Niutoputapu with a glottal stop which suggests a Tongan origin and thus justifies a PPN reconstruction.

The etymon *taga has the reflexes given below, with identifications made by researchers in the language areas concerned (Lutjanus fulvus and L. vaigiensis are synonyms, the latter term being the one in current use. L. marginatus is also probably a synonym for L. vaigiensis):

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5 A slightly different and theoretically more rigorous distinction between these two terms is developed in Blust (1987a). Diebold (1985:57, fn.4) makes a similar point to Blust, his use of the expressions 'onomasiology' and 'semasiology' being analogous to Blust's use of 'lexical' and 'semantic'.
Examining these data in isolation, it is impossible to determine whether the PPN term *taga?u corresponded to a genus, a single species, as in Tokelauan, or a group of species within one genus, as in the case of Cook Islands Maori and Tongan. The species involved are all yellow or yellow-red, and this appears to be the unifying semantic feature of the group. Consideration of the whole set of names for species of genus Lutjanus is a more rewarding endeavour. If one plots the distribution of Polynesian names for Lutjanus species onto a tree diagram representing the Linnaean taxa cited in the several identifications (see Figure 1), one finds that their semantic range is either confined to a single species (as with *ta?iwa, *fagamea and *sawane), or embraces more than one species of the genus, as with *taae?a, *taga?u and *sa(a)putu.

In addition to the identifications given in Figure 1, most of the fish names except for *sawane also occur with glosses such as ‘red snapper’, ‘general name for snapper’, ‘red emperor’, or ‘L. fulvus and other snapper spp.’ L. kasmira is strikingly different in appearance to the other fishes under consideration, being blue with yellow stripes instead of reddish-gold. It is thus not surprising that the etymon *sawane fails to participate in the semantic shifts or hypernymous widening that beset the other fish names in this set. It would seem that the other names between them differentiated the semantic field of reddish-yellow Lutjanus species. Of these, the ones of which the reflexes are identified most consistently with a single species are *fagamea ‘L. bohar’, and *ta?iwa ‘L. monostignus’. Beyond that it is impossible to specify, but we have at least established that the Proto Polynesians made a five-way distinction within the group of reddish-yellow Lutjanus species. By comparison with the Linnaean system there is lexical over-differentiation, as there is no single term corresponding to the genus. We might, however, interpret the semantic profiles of the five cognate sets as an indication that reddish-yellow Lutjanus species constituted some kind of covert category for Polynesian fishermen.

Note: In order to avoid complicating the diagram with a mass of language names, I have used the PPN forms of the fish names to indicate that a reflex of this name occurs in one or more languages with the identification given.
The genus *Caranx* constitutes another interesting case. Four species of this genus are particularly important as food fish, and they closely resemble one another in appearance: *C. melampygus* (Cuvier & Valenciennes), blue jack, *C. ignobilis* (Forskal), big-headed jack, *C. lugubris* (Poey), black jack, and *C. sexfasciatus* (Quoy & Gaimard), horse-eye jack. Six names can be reconstructed, five of them at PPN level (#52, #53, #55, #57 and #59), but they are not applied consistently to the same species; also, growth terms for *Caranx* species exist in all languages, and these same five words can occur at different levels in these sub-systems. *C. melampygus* is one of the most commonly caught and highly esteemed food fishes, yet with surprising frequency its name is a local innovation. This may be due to the fact that it is generally assumed to be a younger *C. ignobilis* (*ulua*), as happens in Tokelau and Tahiti to my knowledge, and no doubt elsewhere. There is a widespread tendency for the names of juveniles to be local innovations. However there is one striking exception to this tendency: *lupolupo* has widespread distribution as a name for juvenile *Caranx* species. My Niuean informant grouped the four species together and gave the following growth terms for them:

- *lupolupo* : baby
- *malausea* : to 12 inches long
- *aheu* : to 20 inches long
- *ulua* : largest growth stage
- *uluakata* : ‘nickname’ for very large *Caranx*

All of these names except *malausea* occur for *Caranx* sp. in other languages.

Tokelauan informants provided the schematic representation of the growth stages of *Caranx* shown in Figure 2. It is noteworthy that the degree of lexical differentiation varies from one life-stage to another, but that only three species in all appear to be recognised here.

Taken together, the facts presented above, and in particular the widespread occurrence of *lupolupo* as a term for juveniles of all species, and of *ulua* as a term for mature or very large specimens, constitute good evidence for a covert superordinate category corresponding to the genus *Caranx*.

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**Figure 2**

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  /------------------\  
 /                 \   
 /        lupolupo   \  
 /                    \  
 /     /-------------\   
 /    /               \  
 /   aheu             komulo   tafauli   
 /-------------------\                  \             
 /        amafua      kata       
 /---------------------\            \          
 /    ulua (kata)    ulua tafauli 
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"lupolupo" in Niuean
Against this background, certain examples stand out which are not in accord with the Linnaean system of categorisation. On the one hand, related species may be assigned to different classifications because of different functional criteria. Tokelauans use the term itū kāiga (literally ‘side of the family’) for groupings of species which are held to be related. The Caranx varieties aheu, alaala and tafauli are assigned to one itū kāiga and the Lutjanidae and Lethrinidae varieties fagamea, filoa, taiva, tāea, tagau and haputu are assigned to another. However, within the family Scombridae, also an economically important one, tavatava ‘dog-tooth tuna’ is not assigned to the same itū kāiga by my informant as the pelagic kakahī ‘yellow-fin tuna’, because tavatava is a ‘reef fish’. Nor is atu ‘skipjack tuna’ included with either of these, because it is one of the ika e hula i vāi tauhaga ‘fish which appear at certain times of the year’. Yet the morphological similarities between these three species are at least as salient as in the case of the Caranx or Lutjanus species discussed above.

On the other hand, a basic-level fish name may be applied to two or more species from different families or even suborders of fishes, in a categorisation based on habitat or behavioural patterns. An example of this is PPN *talitali?uli, widely reflected as the term for remora (Echeneis naucrates, family Echeneidae) but frequently applied also to pilot fish (Naucrates dactylus, family Scombridae). These are Perciform fish of different families and markedly different appearance, but united in their close association with sharks. For Tongan teleti’uli Churchward (1959) gives the gloss ‘pilot fish’. Dye (1983) includes the same form (identifiable as a Tongan word from its phonological form) in his list of Niuatupu fishes, but with the gloss ‘remora’. The entry for talitaliuli in the Tokelau dictionary (Simona et al. 1986) reads “Fish parasites which include the pilot fish (Naucrates dactylus), cleaner-fish or paradise fish (Labroides dimidiatus) and the teletelevakaniu or suckerfish (Echeneis naucrates)”.

Let us also consider the fish name *00 (#147), of which a number of reflexes refer to the fry of the genus Siganus. I suspect, however, that this name was used for a number of small schooling species, on the basis of size, behavioural characteristics, and function as baitfish, and that it is impossible to suggest a precise identification for the protoform. The situation in Tokelau is typical. There, ā are tiny, whitebait-sized fish which form dense, spherical schools outside the reef during the dark phase of the moon. They are a food source for several varieties of pelagic fish, and their appearance is associated with the presence of skipjack. Quantities of fresh, dead ā can be used for chumming during pearl-shell poling for skipjack. A highly valued food fish in themselves, they are caught in a fine-meshed net and eaten whole, either fried, or sun-dried and subsequently cooked in coconut cream. An ichthyologist has recently identified specimens of Tokelauan ā as damselfish, Lepidozygus tapeinosoma Bleeker (Gillett 1990), and has also identified Tokelauan ātala as the fry of the genus Siganus, which occur in large aggregations and are more mobile than ā (Gillett 1985, Table 3). A technical fisheries study of tuna baitfish6 contains a suggestive description of fusiliers: “Fusiliers...are taken in greatest abundance near reefs and are important baitfish in many areas. They are robust and highly regarded as bait. As with cardinals, careful dimming of the light is often necessary to induce them to rise off the bottom” (Lewis et al. 1983). Kennedy (1931) describes Tuvaluan ā as silver and bluish-green in colour; however Gillett’s

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6 “Tuna baitfish are a diverse group of small schooling fishes that are used as live bait in pole-and-line fisheries for skipjack and other tunas in most tropical and subtropical areas” (Lewis et al. 1983:1).
own enquiries in Tuvalu elicited a description of a small red baitfish. Pukapukan wō have the same behavioural characteristics as Tokelauan ō.

My final comments concern a fish name which is the subject of another paper (Hooper 1991). In this case more extensive extralinguistic information of a specialist kind is necessary to prevent a misinterpretation of the linguistic facts. The name *palu is reflected in many languages with polysemous reference to a number of fish species which inhabit very deep water and are caught on long-lines. Only some of these species are phylogenetically related to one another. Berlin, quoted in Lakoff (1987:37) mentions the occurrence in folk taxonomies of “functional basic-level categorization, which adds in factors to do with culture and specialised training”. Lakoff himself calls such factors ‘interactional’ properties. It seems likely that *palu in Polynesian is an example of a category which is defined by an interactional property: the fishing strategies devised to exploit the possibilities of a particular habitat, 400 to 500 metres below the surface of the sea.

It should be emphasised that palu is not what Cecil Brown (1984:10) calls a “special purpose folk category”, that is, a term such as ‘farm animal’ or ‘desert shrub’, which groups together independently named species under an ecological label. In other words, palu is not simply equivalent to ‘deep-sea fish’. Polynesian languages have such terms, for example the Tokelauan categories referred to above, as well as Tokelauan ika o te nemo ‘lagoon fish’, or ika o te moana ‘ocean fish’, but species included in those categories have their own names.

Reflexes of *palu occur as primary lexemes and as the first term in secondary lexemes. The difference between the two is in general associated with two different fishing strategies. As a primary lexeme palu refers to the oilfish Ruvettus pretiosus (family Gempylidae). Ruvettus fishing is done at night, in deep water some distance from the reef. Not all Polynesian communities have access to a marine environment suitable for the specialised techniques involved. As depths of around 400 metres at some distance from the shore provide the best catches, sheltered lee shore fishing grounds are essential. The techniques and equipment employed, including the distinctive large, triangular wooden hooks, have been described in some detail in Kennedy (1931), Nordhoff (1930), Beaglehole and Beaglehole (1938) and Bacquie (1977). The oilfish, or more aptly, the castor-oil fish, is a notable species on account of its large size and horny scales, and also the quality of its flesh, which is an opaque pure white and permeated with a fine oil which has a laxative effect. This fish may also on occasion be referred to by a binomial, such as Tokelauan and Niuatoputapu palu pō ‘night palu’.

Daytime fishing of comparable depths, but closer to the reef edge, produces a number of species referred to by binomials. In Tokelau this type of fishing is known as makomako, and in Pukapuka as tuku moana. The description given in Beaglehole and Beaglehole (1938:65) tallies closely with Tokelauan accounts of the technique: “Tuku moana fishing is deep-sea hand-line fishing up to about 300 fathoms and involves the use of a special composite fishing apparatus (taumakomako) consisting of four or more hooks fixed by spreaders to a single line”.

The group of palu which are caught by the daytime technique consists primarily of the four deepwater snappers listed in #81: Aphareus furcatus ‘small toothed jobfish’, Etelis carbunculus ‘squirrel fish snapper’ or ‘short-tailed red snapper’, Pristipomoides argyrogrammicus ‘big-eyed snapper’, and Tropidinius zonatus ‘flower snapper’. The four species have in common a pink to yellow colour range and a maximum length of three feet.
Certain other deepwater species have the name \textit{palu} in some languages, for example Tokelauan \textit{palu magō}, Tuvaluan \textit{palu magō}, Pukapukan \textit{palu magō} ‘deep-sea shark’; Tuvaluan \textit{palu paatuki}, Tahitian \textit{palu hoa} ‘orange rock cod \textit{Epinephelus truncatus}’ In addition, numerous binomials are recorded with glosses like ‘species of deep-water fish’. Beaglehole and Beaglehole (1938:29) give eighteen kinds of \textit{palu}. In many cases the attributive term denotes a type of fish which the deepwater variety presumably resembles, for example \textit{palu yue} ‘giant balloon fish’, cf. \textit{yue} ‘balloon fish’. None of these secondary lexemes is sufficiently widely distributed to warrant a PPN reconstruction.

The name \textit{palu} thus embraces a major semantic discontinuity. The distribution of semantic reflexes taken in isolation from other considerations would allow us to reconstruct the meanings ‘oilfish’ and ‘deep sea snapper species’ for *\textit{palu}. However, close examination of extralinguistic factors, in particular the archaeological evidence, reveals the first of these identifications to be highly problematic (see Hooper (1991) for a discussion of these factors). We must allow for the possibility of independent semantic shift in different languages as the range of possible referents of \textit{palu} was extended to accommodate the knowledge and exploitation of additional deepwater species. \textit{Ruvettus} fishing was most probably a development and extension of deepwater shark fishing techniques, and the \textit{Ruvettus} hook a modification of the large wooden shark hook, adapted to the mouth shape of the \textit{Ruvettus} and its characteristic method of taking the bait (Anell 1955:235-237). Diffusion of the particular technique would have been accompanied by diffusion of the name of the fish.

Given the likelihood that \textit{Ruvettus} was a late addition to the category \textit{palu}, we can make two observations of linguistic interest. The first concerns strategies for naming novel species. Lexical innovations in fish nomenclature are common at all levels of the Polynesian language family. The \textit{Ruvettus} is a most singular creature and on the grounds of its perceptual salience might seem to have warranted a name of its own. It is something of a puzzle that Polynesian speakers chose to lump it with the other deepwater species known as \textit{palu}.

The second observation concerns the nature of the category that resulted. In a study of salmonid fish nomenclature in Indo-European, A.R. Diebold (1985:4) comments that “when a...semantic domain is disturbed by introduction of a conceptual novelty, the associated lexically structured word-fields undergo perturbations”. We can surmise that the history of the word \textit{palu} has been associated with such perturbations. It seems likely that the original referent of the term was the group of deepwater snappers found in so many PN languages with this name. As such it was no different from other folk generics that denote a group of related species, such as \textit{humu} ‘triggerfish’ and the various secondary lexemes which incorporate this term. As noted above, the four snapper species are similar in appearance and quite closely related phylogenetically.

The initial ‘perturbations’ in this lexical domain occurred with the tendency to bestow the name \textit{palu} upon other fish caught with the same techniques and in a similar habitat; it was at this point that interactional factors replaced perceptual similarity as the defining criteria for the category \textit{palu}.

\footnote{Eastern Polynesian communities which fish for \textit{Ruvettus} do not use the name \textit{palu}, which is replaced by an innovation within EP, the form *kuravena. Note also the recent Easter Island innovation, \textit{konosome}, a term ‘taking its origin from the consommé made from the flesh of \textit{Ruvettus}’ (Randall & Cea Egaña 1984: 6-7).}
A further perturbation must have occurred with the incorporation of the *Ruvettus* into the category. In languages with the full range of meanings for *palu*, the primary referent of the monomial term is *Ruvettus pretiosus*. In the absence of a disambiguating context, a reference to *palu* will be interpreted as meaning ‘oilfish’. Both the effort and skill involved in the method of angling, and the size and grandeur of the catch, ensure that *Ruvettus* is *palu* par excellence. Yet *Ruvettus* has few morphological features in common with the snapper varieties also known as *palu*.

It is generally assumed that focal members of a category have more of the features associated with that category than do more peripheral members. So the sparrow is a better example of the category ‘bird’ than is the emu, both because of its size and its ability to fly. However in the case of *palu* we have a folk zoological category of which the best exemplar shares fewer distinguishing morphological features with other members of the category than those more peripheral members share with one another. Only when we recognise the interactional nature of the category, and the fact that *Ruvettus* is the most valued product of the type of interaction concerned, long-line deep-sea fishing, can we understand its focal status.

**APPENDIX 1: KEY TO LANGUAGE NAME ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Code</th>
<th>Language</th>
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<tbody>
<tr>
<td>ANU</td>
<td>Anuta</td>
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<tr>
<td>CIM</td>
<td>Cook Islands Maori</td>
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<tr>
<td>EAS</td>
<td>Easter Island (Rapanui)</td>
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<tr>
<td>EFU</td>
<td>East Futunan</td>
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<td>EUV</td>
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<td>FIJ</td>
<td>Fijian</td>
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<td>HAW</td>
<td>Hawaiian</td>
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<td>ISLV</td>
<td>Isles sous le vent</td>
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<td>Kapingamarangi</td>
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<td>KIR</td>
<td>Kiribati</td>
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<td>Mele Fila</td>
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<td>Proto Central Eastern Polynesian</td>
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<td>Proto Samoic-Outlier</td>
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<td>WFU</td>
<td>West Futunan</td>
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<td>WUV</td>
<td>West Uvean</td>
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**APPENDIX 2: THE RECONSTRUCTIONS**

Note: For ease of reference I have followed the convention of presenting the fish names in approximate phylogenetic order. The individual reflexes used to support the reconstructions
are given in the orthography of the sources, whereas the reconstructions themselves employ a consistent orthography, including the use of double vowels to indicate a long vowel and IPA symbols for glottal stop and the velar nasal. Where there is no gloss beside a fish name it can be taken to be consistent with the gloss I have given for the protoform. The Proto Austronesian (PAN) reconstructions cited are from Blust (1971, 1972c, 1980a, and 1983-84a). Proto Oceanic (POC), Proto Remote Oceanic (PRO) and Proto Central Pacific (PCP) reconstructions are from Walter (1989) or Geraghty (this volume), as indicated. In some examples I have made one minor change in Geraghty’s orthography, in using /ŋ/ for his /ɡ/.

Data from Geraghty’s paper has allowed the reconstruction of a number of PPN etyma which were not included in my original draft. These are #14, 15, 16, 17, 58, 71, 94 and 123.

CARCHARHINIDAE and Sphyrynidae: Sharks

#1 PPN *mangelo ‘general term for shark spp.’
PCP *mangelo (Geraghty)
NIU mango, SAM, TOK, TUV mago, PUK, NUK mangō, KAP mongohenua, LUA magoo, REN, TIK mango, MEF magoo, WFU mago, WUVmango, EAS mångo, HAW manō, MQS mako, moko (North), mano, monō (South), TAH, RAP mao, CIM, MAO mangō

This is the general term for shark species in the languages in which it occurs. In Easter Island it is used for Carcharhinidae (requiem sharks), Sphyrynidae (hammerhead sharks), and Squalidae (dogfish sharks), but other names are used for Lamnidae, Alopiidae and Rhincodontidae spp. (Randall & Cea Egaña 1984). The short final /o/ of the Tahitian and Marquesan reflexes is an irregular development, seen also in KAP mongohenua. Two specific terms worth noting are TOK moko haa ‘Isurus glaucus (Miiller & Henle), mako shark’ and KAP mogo lewe ‘Carcharhinus longimanus (Poey), white-tipped shark’ (cf. PPN *moko ‘lizard’ as a possible source of euphemism in these expressions).

#2 PPN *tanifa ‘shark sp.’
PCP *tanifa ‘Galeocerdo tiger shark’ (Geraghty)

The Tuvaluan and Marquesan identifications are hard to explain, but for the latter cf. PNP tānīwa.

#3 PPN *mata?italiga ‘Sphyrna spp., hammerhead shark’
PCP *mata?italiga (Geraghty)
TON matai, NIU matei, EUV mata’i taliga, TOK mata i taliga, TUV maitai taliga, LUA memeakali:ga, REN mata ‘taginga, TIK, ANU matai taringa

An obviously descriptive name (‘eyes on ears’). The term has been lost in Eastern Polynesian, which is surprising in view of its aptness.
# PPN *naiufi ‘shark sp.’
PCP *-ufi ‘k.o. large shark’ (Geraghty)
TON (‘anga)neui, SAM naiufi ‘k.o. shark’, TIK nai fi ‘type of shark (unid.)’, EAS niúhi ‘Carcharodon carcharias, mackerel shark’, MQS niúhi ‘Carcharhinidae sp.’, TUA niúhi ‘very large shark’

Limited distribution but geographically well dispersed; the Tuamotuan identification is cited from Rensch (1988:158).

# PPN *aso ‘shark sp.’
PCP *aso ‘k.o. large shark’ (Geraghty)
TON ‘aho ‘k.o. shark’, SAM aso ‘white-tipped shark’, TOK aho ‘a huge, clumsy, grey deep-sea fish about twenty feet long...probably belongs to the shark family but is not as fierce’, NUK aho ‘white-tipped shark’, MAO aho(aho) ‘a fish’

DASYATIDAE, MYLIOBATIDAE, MOBULIDAE: RAYS

# PPN *fai ‘Himantura spp., stingray, general term’
POC *paRi, PAN *paRi, PCP *vai (Geraghty)
TON, EUV, EFU, SAM, TOK, TUV fai, PUK wai, KAP hai, LUA ha‘ii, REN hai, TIK, ANU, PIL, WFU, WUV, MEF fai, HAW, MQS hai, TAHI fai, MAO whai

In addition to the folk generic term, there are two widely distributed secondary lexemes, given below.

# PPN *fai manu ‘Aetobatis narinari (Euphrasen), eagle ray’
PCP *vaimanu, PEO *vaRimanu (Geraghty)
TON, NTP, EUV, EFU, TUV fai manu, KAP hai manu ‘bar ray’, cf. hai loto gelegele ‘eagle ray’, TAHI fai manu, MAO whai manu

Compare PPN *manu ‘bird’. Note also SAM faipe'a, TAU, PIL hai peka and TIK fai peka ‘eagle ray’; cf. peka ‘bat’. Geraghty (this volume) tentatively reconstructs PCP *vaibekwa, but comments that “the chances of parallel development of the form...are very high”. However, this caveat also applies to *faimanu.

# PPN *fai kili ‘sandpaper ray’
TON, NTP, EUV, TOK, TUV fai kili, TAU hai kili

Another descriptive term. The rough skin of this species is put to a number of uses. Rensch (1983) identifies EUV fai kili as Taeniura melanospila (Bleeker); cf. PPN *kili ‘file’, a more likely qualifier than *kili ‘skin’ although either is plausible.

# PPN *faafaalua, ‘Manta alfredi (Macleay), manta ray’
TOK fāfālua ‘A. narinari, eagle ray’, PUK wāwālua, HAW hāhālua, MQS hāhā’ua, TAH fāfāpiti, TUA fāfarua, CIM ʻārua ‘large species of voracious fish’ (Savage 1962).

All are glossed ‘manta ray’ except where otherwise indicated. The lack of correspondence in the Tahitian form is due to the replacement of rua by piti as the word for ‘two’. The semantic shift in the Tokelauan form is puzzling; the Tokelauan word for manta ray is lautiapua. Note also WFU fafataro (no semantic information).
ALBULIDAE

#10 PPN *kiokio ‘Albula vulpes (Linnaeus), bonefish’
PCP *k(i,u)o (Geraghty)
TON, NTP kiokio, EUV kiokio ‘Elagatis bipinnulatus, rainbow runner’, TOK, TUV, PUK kiokio, TIK kiokio ‘Chanos chanos’, TAU kiokio ‘Harengula abbreviata, southern herring’, HAW ‘o’io, MQS kiokio, TAH ‘io’io, TUA, CIM kiokio

All reflexes are glossed A. vulpes except where indicated. The TAU kiokio is a member of the order Clupeiform, to which Albulidae also belong. In the case of the East Uvean form, the semantic shift is quite marked.

CHANIDAE

#11 PPN *qawa ‘Chanos chanos (Forskål), milkfish or salmon herring’
PAN *qawa ‘milkfish’, POC *qawa (Walter 1989), PCP *qawa (Geraghty)
TON ‘ava, EUV ‘Mugil cephalus, mullet sp., also Polynemidae sp.’, avaava ‘Megalops cyprinoides, tropical tarpon’, SAM, TOK, TUV, PUK ava, HAW awa, TAH, CIM ava, Tubuai avaava

Again, marked semantic shift in the East Uvean form, otherwise perfect semantic correspondence.

MURAENIDAE, CONGRIDAE: EELS

#12 PPN *toke ‘sea eel’
TON, NTP, NIU toke, EUV toke ‘generic term for morays’, SAM to’e, EAS toke ‘Brotula multibarbat a (Temminck & Schlegel)’, HAW ko’e ‘worm of any kind’, TAH to’e ‘earthworm, intestinal worm’, MAO toke ‘a fish’

#13 PNP *pusi ‘sea eel, Gymnothorax spp.’
PCP *p(i,u)si (Geraghty)
EFU puhi ‘sea snake, sea eel, conger’, SAM pusi ‘general name of moray eels’, TOK puhi ‘general name for eels’, TUV pusi ‘Gymnothorax’ (Zann 1980), PUK pui ‘Echidna zebra’, TIK pusi ‘Gymnothorax sp., grey brown reef eel’, WUV pusi ‘sorte d’anguille de mer’, EAS puhi (hakanonga) ‘G. bathyphilus (Randall & McCosker)’, HAW, MQS, TAH pui, RAP pui ‘Anguilla sp., freshwater eel’, CIM pui ‘a species of large sea eel’ (Savage 1962), MAO puhi ‘a very large variety of eel’ (the same as hao ‘mud eel’).

A number of secondary lexemes are recorded for Tokelauan, Hawaiian and Tahitian. In addition to the Easter Island form cited above, Randall and Cea Egaña (1984) cite several secondary lexemes in which puhi is a qualifier. The Pukapukan form is presumably a borrowing from Cook Islands Maori.

ANGUILLIDAE

#14 PPN *tuna ‘Anguilla spp., freshwater eel’
PCP *tuna (Geraghty)
TON tuna ‘k.o. eel including tuna tahi (sea eel) and tuna vai (freshwater eel)’, NIU tuna ‘freshwater eel’, EUV, EFU, SAM tuna ‘freshwater eel’, PUK tuna wenua ‘freshwater eel’
(lit. ‘land eel’), TIK tuna ‘eel, gen. term applied especially to lake eels’ (Firth 1985), TAU tuna laulau hau ‘Anguilla reinhardtii, freshwater eel’, PIL tuna ‘A. reinhardtii’ (both these from Lincoln n.d.b), WFU tuna ‘freshwater eel’, HAW kuna ‘variety of freshwater eel’, TAH tuna ‘freshwater eel’ (Davies 1851 only; the modern term is puhi pepe), CIM tuna ‘eel’ (general term)

Compare FIJ duna ‘freshwater eel’. The lack of reflexes from atoll languages can be explained by the lack of a freshwater habitat in those places. Note however, TAU and PIL tuna (lauau hau) in Lincoln’s data.

CLUPEIDAE

#15 PPN *nifa ‘Sardinella sp.’
PCP *niva (Geraghty)
EUV nifa ‘k.o. sardine’, MQS nifa ‘Sardinella marquisensis’, TAH nifa ‘the name of a spotted fish’ (Davies 1851), TUA nifa ‘juvenile Alula sp.’

#16 PPN *sasaa ‘Spratelloides sp.’
PCP *cacā (Geraghty)
TON hāhā ‘anchovy’ (Rensch 1983), EUV hāhā (no identification), TOK hāhā ‘Spratelloides delicatulus’, TIK sā ‘small fish of anchovy type’

#17 PPN *saraa ‘small schooling fish, Clupeiform sp.’
PCP *sará (Geraghty)
TON hā ‘k.o. fish: very small, like whitebait; found in shoals’ (Churchward 1959), NUK salā ‘flying fish’, LUA salā ‘small blue fish’, SIK salā ‘k.o. fish’

#18 PPN *sali(i) ‘small fish, possibly Atherinidae sp.’
TON helī ‘small k.o. fish’, SAM sali ‘small fish (Atherina sp.), k.o. sardine’ (Milner 1966), TUV sali ‘several species of Clupids’ (Zann 1980), REN sagi

Geraghty (this volume) regards this and #17 as PPN doublets.

HEMIRAMPHIDAE

#19 PPN *ise ‘halfbeak spp., including Hyporhamphus acutus (Günther)’
PCP *ije (Geraghty)
TON, EUV ihe, SAM ise, TOK ihe, TUV ise, PUK ie, ieie, NUK ise, KAP iha, TIK ise ‘garfish Belonidae or ?? small crocodile needlefish Tylosurus crocodilis. Taken by net on reef, sometimes in very large numbers’ (Firth 1985), EAS ihe, HAW iheihe, MAO ihe ‘H. intermedius’; note also iheihe, another name for hakuraa ‘Southern whale’.

Again, the Pukapukan form appears to be a borrowing from Cook Islands Maori, although I have not as yet obtained a Cook Islands Maori reflex. However Kevin Salisbury (pers.comm.) says that sporadic loss of Pukapukan /y/ intervocally is not uncommon. The description in Firth sounds much more like Hyporhampus acutus than the two species mentioned by him.
BELONIDAE, AULOSTOMIDAE, FISTULARIDAE

These families are considered together because the Polynesian names show some semantic shifts from one family to another, doubtless because of the close physical resemblances.

#20 PPN *haku 'garfish of family Belonidae'
PCP *(c,s)aku (Geraghty)
TON haku 'Belonidae spp.', EUV haku 'Tylosurus crocodilis, Strongylura leiura, S. urvili', SAM a'u 'Tylosurus sp.', TOK aku 'needlefish, about 2 feet long', PUK aku 'Tylosurus sp.', akuaku 'Platybelone sp.', KAP agu 'large needlefish', REN, TIK aku 'general term for needlefish and garfish', WFU aku (Fakamura n.d.), WUV aku '?aiguillette, Hémiramphidé', EAS ihe aku 'Platybelone argalus platyra (Bennett), to 40 cm. in length', HAW auau 'Tylosurus gigantis' (Jordan & Seale 1906), MQS aku 'general term for needlefish and garfish', TAH a'uu'u 'Platybelone sp.', TUA, CIM aku 'general term for needlefish and garfish'

The Hawaiian form is probably a'uu'u. The phonological evidence justifies the reconstruction of *haku, as distinct from *saku, which Walsh and Biggs (1966) proposed for both garfish and swordfish species (see #134). The development of these doublets appears to be a PPN innovation (cf. Proto Fijian *saku 'Belonidae' and *saku(laya) 'sailfish').

#21 PPN *taotao 'Aulostomus and Fistularia spp.'
TON, NTP tootao 'Aulostomus sp.', TOK taotao 'Fistularia petimba (Lacépède), flutefish', PUK taotaoama 'F. petimba', SAM taotao 'F. petimba', tako tito, 'Aulostomus sp.', TIK taotaoama 'a mullet', PIL toteama 'Tylosurus sp.', TAU (temaele) toteama 'Tylosurus sp.', WFU toteama (no semantic information), EAS toto amo 'A. chinensis (Linnaeus)', MQS koko'o'ama (Hiva Oa), ko'oama (Fatu Hiva) 'A. chinensis'

Compare *tao 'spear'. The distribution of forms containing the segment -ama is not readily explicable. Clerk (1981:162) comments that Mangaians regard Aulostomidae and Fistularidae as a single category.

#22 PNP *tupou(pou) 'Aulostomus valentini (Bleeker), trumpet fish'
TOK tupou(pou), PUK tūpou(pou), HAW kūpou(pou) 'Cheilio inermis, sharp-nosed wrasse', TAH (au)papa tohe) tupou, TUA (kakavere) tupou(pou), RAP tupou

Compare *tupou 'bow, stoop'. Only the Hawaiian form shows a semantic discrepancy, which is wide indeed. Although C. inermis is more thin and pointed than other wrasses, it shows little resemblance to A. valentini. Related to the first morpheme in the Tuamotuan form above are the following: TUA tātāvere, totōiri, TAH a' avere 'Tylosurus crocodilis', RAP tatavere 'Fistularia petimba'.

EXOCOETIDAE

#23 PPN *sasawe 'Exocoetidae, flying fish sp.'
NIU hahave 'large flying fish', EFU sasave 'poisson volant', SAM save 'a young flying fish' (Pratt 1878), TOK hahave 'Cypselurus simus', TUV ssave, hahave 'Exocoetus spp.', NUK ssave, KAP tawe, LUA save, REN sasabe, TIK, ANU save, TAU, PIL ave, WFU save, WUV ssasave 'petit poisson volant', EAS hahāve 'Exocoetidae'

All glossed 'flying fish'. The only Eastern Polynesian language to have a reflex of this word is Easter Island, where it is the general term for flying fish; Randall and Cea Egaña
(1984:8) list three species. Phonetic correspondences are regular, except for Kapingamarangi where */sl > /l/.

#24 PPN *maalolo ‘flying fish spp., including Cypselurus simus’
TON mālolo ‘flying fish sp.’, EUV mālolo ‘generic term for flying fishes’, SAM, TOK, TUV, PUK mālolo, HAW mālolo, MQS ma’o’o, TAH, RAP, TUA māraroa, CIM, MAN māroro, MAO maaroro

#25 PPN *sipa ‘young flying fish’
TON sipesipa ‘k.o. fish, small, silvery, slimy’, NIU hipa ‘young flying fish’, EUV sipa ‘planer en l’air’, SAM sipa, TOK hipa, TUV sipa, PUK yipa, KAP hiba, TIK sipa, CIM tipa ‘young māroro’ (Bacquie 1977), MAN ko’ipa ‘small flying fish’

It seems likely that *maaroro was the original general term for flying fish, retained even in Maori, and that *sasawe was a PPN specific term, lost in Tongan, Pukapukan and Eastern Polynesian and generalised elsewhere. Note the irregular correspondence in the initial consonant of the Cook Islands Maori form.

HOLOCENTRIDAE

#26 PPN *malau ‘general term for a number of fishes of the genera Holocentrus, Adioryx, Myripristis and Flammeo, soldierfishes and squirrel fishes’
PCP *ma(r,l)au (Geraghty)
TON, NTP, NIU, EUV, EFU, SAM, TOK, TUV, PUK, NUK, KAP malau, REN magau ‘Holocentrus sp.’, TIK marau ‘Holocentrus spinifer (Forskål)’, ANU te marau, WFU marau ‘Adioryx caudimaculatus and others’ (Fakamuria n.d.), marauoa, EAS mārau, MQS ma’au, me’au ‘Myripristis spp.’, TAH marau (Davies 1851 only, ‘name of a small fish’)

Note the irregular long vowel in the Easter Island reflex. Many sources list a number of binomials, but only the following one justifies a tentative reconstruction.

#27 PSO *malauloa ‘Adioryx sp., possibly Adioryx andamananensis (Day), red squirrel fish’
SAM, TOK, TUV, PUK malauloa, WFU maraoa (no semantic information)

Both Tokelauan and Pukapukan informants made the identification A. andamanensis.

#28 PPN *talakihi, PNP *talatala ‘soldier or squirrel fish spp.’

The phonological shape of the Niuatotapu reflex teelekihi (as opposed to talatala) suggests a Tongan origin, so we can assume the correctness of the PPN identification. Note that tala means ‘spiny’ and that a descriptive origin for the Eastern Polynesian *tarakihi forms cannot be ruled out. The two species involved do not resemble soldier or squirrel fishes, and although not markedly different in appearance from one another, are not markedly similar either. The New Zealand tarakihi has three spines attached to the anal fin – a
feature which the photograph in Bagnis et al. (1972) suggests G. aureolineatus may share. Rensch (1988:261) points out that in Mangarevan this name is "in a metathesis relationship with ta'a'akari".

#29 PPN *ta?a 'Holocentrus sp., probably H. spinifer (Forskål), armoured soldier fish'  
PCP *ta?a, POC *taRa?a (Geraghty)  
TON ta'a 'H. spinifer', NIU (ika)tā 'Holocentridae, including H. spinifer', TOK, PUK tā 'H. spinifer', NUK, KAP daa 'Holocentrus sp.', TAU, PIL tā 'Adioryx sp.'

#30 PPN *malauta?a 'Adioryx sp.'  
TON, NTP malauta'a 'Adioryx spinifer', EUV malau ta'a 'A. spinifer and A. cornutus (Bleeker)', SAM, TOK tāmalau 'Adioryx caudimaculatus (Rüppell), white-tailed squirrelfish', TUV tāmalau 'Adioryx sp.', KAP malau-daa 'red snapper'.

Note that the order of the morphemes is reversed in Samoan, Tokelauan and Tuvaluan.

#31 PPN *kuru 'Myripristis sp.'  
PCP *kuru (Geraghty)  
NIU kū 'a small red fish' (informant), KAP gugu 'fish sp.', HAW ūū 'Myripristis sp.', TAH ūū 'poisson de couleur rouge' (archaic, replaced by i'iihi), RAP kū 'Myripristis sp.'

Geraghty's PCP reconstruction, supported by Fijian kuru, Rotuman *uru, allows this semantic reconstruction for PPN.

PRIACANTHIDAE

#32 PPN *matapula '?Priacanthus cruentatus, red globe-eye'  
TON matapula 'small fish with protruding eyes', NTP malaumatapula (not identified), matapula 'Apogon sp.', EFU matapuni 'nom d’un poisson', EUV matapula 'Pomacentridae sp.', SAM, TOK, PUK matapula 'P. cruentatus'  

Compare PPN *mata 'eye' and *pula 'shine, glow'. The first Niuatoputapu form given above, as well as the East Uvean word for Priacanthus sp., (malau) matamu, reflect the perceptual similarity of P. cruentatus and the soldier fishes. Apogon species are unrelated to P. cruentatus, but do have protruding eyes.

BOTHIDAE

#33 PPN *ali 'Bothus spp., flounder'  
PCP *(y)ali 'flattfish' (Geraghty)  
TON, NIU, EUV, EFU, SAM, TOK, TUV, PUK ali 'Bothus mancus (Broussonet), left-eye flounder', NUK halihali paa, LUA ali, REN agi, ANU ali, TAU, PIL ali, WFU ali, WUV ali  

All glossed 'flounder' or 'Bothus sp.'. This word had been lost in Eastern Polynesian and replaced by a number of different forms.
SPHYRAENIDAE

#34 PPN *ʔono ‘Sphyraena spp., barracuda’
PCP *ʔono, POC *ʔono ‘barracuda’

The semantic shift in Niuatoputapu, Hawaiian and Marquesan is well motivated, as the wahoo is a large predatory ocean fish of similar shape and colouring to barracuda. For A. solandri, see #128.

#35 PPN *(s,t)apatuu ‘Sphyraena spp., barracuda’

The distribution of variants is somewhat confusing. One could propose PNP *tapatu except for the existence of the Samoan form with initial lsi. In the Hawaiian and Pukapukan reflexes, /p/ has dropped out between identical vowels, leaving a long vowel.

#36 PPN *(s,j)aa*(s,j)aa (Geraghty)
NTP hahau ‘shark’, NIU haahaa ‘sp. of pipefish’, EUV saasaa ‘espèce de barracuda’, SAM saasao ‘k.o. fish...predatory and dangerous’, TOK haahao ‘Sphyraena forsteri, when fully mature’, TUV taataao ‘S. forsteri and Fistularia petimba’, TIK saasao ‘S. barracuda’, EAS tiatao ‘S. helleri (Jenkins)’, MQS kaakao ‘S. forsteri’. Again, puzzling variation in the initial segment (but see comments in Geraghty (this volume)). The mature haahao is called pānanua in East Uvean and Tokelauan; cf. Kiribati baniniua, ‘S. barracuda’ (Taumaia & Gentle 1983).

MUGILIDAE

#37 PPN *kanahe ‘Mugil cephalus (Linnaeus), Crenimugil crenilabis (Forskål), and other mullet spp.’
PCP *(s,j)a(to)*(s,j)a (Geraghty)
NTP habau ‘shark’, NIU haahao ‘sp. of pipefish’, EUV saasao ‘espèce de barracuda’, SAM saasao ‘k.o. fish...predatory and dangerous’, TOK haahao ‘Sphyraena forsteri, when fully mature’, TUV taataao ‘S. forsteri and Fistularia petimba’, TIK saasao ‘S. barracuda’, EAS tiatao ‘S. helleri (Jenkins)’, MQS kaakao ‘S. forsteri’. Again, puzzling variation in the initial segment (but see comments in Geraghty (this volume)). The mature haahao is called pānanua in East Uvean and Tokelauan; cf. Kiribati baniniua, ‘S. barracuda’ (Taumaia & Gentle 1983).

One of the most widely reflected terms, uniformly glossed as some species of mullet, even in New Zealand Maori. The /s/ in Tuvaluan is an irregularity, as is the final vowel in the Anuta form.
#38 PPN *?aua  ‘mullet sp., ?Neomyxus chaptalii (Eydox & Souleyet), silvery mullet’
PCP *?aua  ‘juvenile mullet’ (Geraghty), PAN *qawas 'N. chaptalii'  

This is a disconcerting jumble, but the PAN reconstruction lends support to the reconstruction of PPN *?aua. We can perhaps guess at PNP *aua, since both terms exist in Cook Islands Maori. Possibly the Tahitian and Hawaiian reflexes are a blending of the two forms.

#39 PPN *fua(fua)  ‘mullet sp., probably juveniles’
TON *fua ‘mullet’, NIU *fua ‘mullet, juvenile’, TOK *fua(ika) ‘mullet, juvenile’

#40 PPN *kafa ‘Mugil vaigiensis (Quoy & Gaimard), diamond-scaled mullet’
PCP *kava ‘M. vaigiensis’, PEO *Kara (Geraghty)
NTP *kafakafa, EUV *kafakafa, SAM ‘afa, TOK *kafa, PUK *kawa, TAU *kaiva, WFU *kafa (no identification), MAN, CIM *kafa

Perfect semantic correspondence for this species, and perfect phonetic correspondence except for the Taumako form.

POLYNEMIDAE

#41 PPN *kumikumia  ‘Polydactylus sexfilis (Cuvier & Valenciennes), P. plebeius (Broussonet), threadfin’

Compare PPN *kumikumi ‘beard, chin’. The Tokelauan word for P. sexfilis is avaava, also meaning ‘beard’.

SERRANIDAE

#42 PPN *faapuku ‘Epinephelus sp., possibly E. microdon (Bleeker), marbled sea bass’

Note the irregular first syllable of the Easter Island reflex. E. quernus is the only member of this genus found in Hawaiian waters, according to Jordan and Evermann (1973[1903]:165). The description of MAN ‘apuku is consistent with E. microdon. The New Zealand Maori species is a member of Percichthyidae, the same suborder as Serranidae, and
has a similar appearance and habitat. Note also MAO matua whaapuku ‘scorpion fish, grandfather hapuku’.

#43 PPN *munua ‘large Epinephelus sp.’
PCP *munua (Geraghty)
TON munua ‘k.o. fish, very large’, EUV munua ‘Variola louti’, TOK munua ‘large Epinephelus sp.’

#44 PPN *tonu ‘Plectropomus leopardus (Lacépède), P. maculatus (Bloch), coral trout’
PCP *donu (Geraghty)
Plectropomus can reach 3 feet in length and a weight of 30 lbs. Several of the glosses mention the size of tonu as compared to other smaller species of Serranid.

#45 PPN *gatala ‘Epinephelus and Cephalopolis spp.’
PCP *gwajaia (Geraghty)

A number of secondary lexemes denoting species are recorded for Niuatoputapu, East Uvean and Kapingamarangi. This word seems to have dropped out of Eastern Polynesian languages except for Tahitian, where it is used for a comparatively uncommon species.

#46 PNP *faaLoa ‘Epinephelus sp., probably Epinephelus tawina (Forskål), spotted sea bass’
EUV faaloa ‘Anyperodon leucogrammicus (Valenciennes)’, TOK faaloa, PUK waloa, MQS ha’oa, TAH faroa, RAP haroa, TUA faroa, CIM (Mangareva) ‘aroa
All are glossed E. tawina, except for East Uvean.

#47 PPN *loi ‘Cephalopolis spp., primarily C. argus (Bloch & Schneider), blue-spotted grouper’
NIU, TOK, PUK, TUV loi ‘C. argus’, WFU roi (no identification), TAH, RAP, TUA roi ‘C. argus’, MAN ro’i, CIM (patuki) ro’i ‘C. argus’
The glottal stop in the Mangaia reflex is irregular.

#48 PNP *(w)ewe ‘Epinephelus hexagonatus (Bloch & Schneider), orange sea bass’
TOK eve, PUK eve, TUA veve ‘E. hexagonatus and E. merra’
This is a quite distinctive species because of the hexagonal shape of the spots, and the five dark blotches on the back.
KUHLIIDAE

#49 PPN *safole ‘fish sp.’, PNP *safole ‘marine *Kuhlia* spp., flagtail’
TON hofole (no identification), NTP hāfole ‘*K. mugil*’, SAM safole ‘*Kuhlia* sp.’, TOK hāfole ‘*K. taeniura* (Cuvier), flagtail, and *K. marginata* (Cuvier), tropical bream’, TUV safole ‘*Kuhlia* sp.’, PUK ayole ‘*Kuhlia* sp.’, NUK safole ‘mountain bass’, LUA ahali ‘flagtail surgeon fish’, TIK safore ‘*Kuhlia* spp.’, TAU hofole ‘*Megalops cyprinoides*, oxeye herring’ (Lincoln n.d.b), EAS māhore ‘*K. nutabunda* (Kendall & Radcliffe)’, HAW aholehole ‘*Kuhlia* sp.’, MQS hoho’e ‘*Kuhlia* spp.’, KAP ahore, TUA ahore ‘*K. sandiwchensis*’, MAN a’ore

In the absence of a gloss for the Tongan form one cannot make a species identification at PPN level. However, PNP *safole* must certainly have been *Kuhlia*. Note the irregularity in the Pukapukan, Luangiua and Hawaiian reflexes of */fl/, and the first syllable of the Easter Island formn. East Uvean has a form *mafole*, glossed ‘growth term for *Caranx*’.

#50 PPN *seseLe ‘juvenile *Kuhlia rupestris*’
PCP *sese (Geraghty)
EUV hehele ‘*Kuhlia rupestris* (Lacépède), a freshwater fish’, SAM sesele ‘name given to a freshwater fish (*Kuhlia* sp.) when immature’

CIRRHTIDAE

#51 PPN *patuki ‘fish sp.’, PPN *ulutuki ‘*Cirrhites pinnulatus* (Bloch & Schneider), hand-fish’
PNP *patuki ‘*Cirrhites* and *Paracirrhites* spp., hand fish’
TON patuki ‘fish sp.’, *ulutuki ‘*C. pinnulatus*’, NTP *ulutuki, NIU ulutuki ‘*C. pinnulatus* and *P. hemistictus*’, SAM ulutu’i ‘*C. pinnulatus*’, TOK patuki ‘*C. pinnulatus*’, patuki laufala ‘*P. hemistictus*’, TUV pātuki ‘*C. pinnulatus* and *Paracirrhites* spp.’, PUK pātuki, NUK ulu-dugi, KAP leduge, TIK urutuki, EAS pātuki ‘*Cirripectes alboapicalis* (Ogilby), blenny’, HAW paku’iku’i ‘*Acanthurus achilles*, surgeon fish’, MQS patuki, TAH patu’i ‘*C. pinnulatus* and *P. arcatus*’, TUA patutuki, CIM patuki(toka), MAO paatutuki ‘*Parapercis colias*, rock cod’

Pending further semantic information on the TON *patuki*, we cannot assign a species identification to the PPN form. Possibly one word was the generic term, the other a specific. In spite of two irregular vowel correspondences in the Kapingamarangi form, it seems to be related to *ulutuki*. The Easter Island and Hawaiian forms show semantic shift to markedly different species. Randall and Cea Egaña (1984) do not give an Easter Island word for *Cirrhites*, but the Hawaiian word is *po'opa'a* or *'o'opu*. Note also EUV pataki ‘*Synodus variegatis*, lizardfish (*Lacépède*)’. The New Zealand Maori form shows a reasonably well-motivated semantic shift: the blue cod has a comparable habitat and somewhat similar length and appearance to *C. pinnulatus*.

CARANGIDAE

#52 PPN *ulu ‘*Caranx* sp., probably *C. ignobilis* (Forskål), big-headed jack’
TON *ulu ‘very large *Caranx*’, NIU ulua ‘large *Caranx*, of the four species listed above’, EUV *ulu ‘*C. ignobilis*, big-head jack’, EFU *ulu ‘*C. ignobilis*’, SAM ulua ‘*Caranx* sp.,

See above, for a discussion of this and other names of Caranx spp.

#53 PPN *tafauli ‘Caranx sp., possibly C. lugubris’


Compare PPN *tuli ‘black’. In Eastern Polynesian languages other than Hawaiian, this term has been replaced by reflexes of PCE *ruhi (see below), everywhere glossed C. lugubris. Note that Pukapukan contains both terms, lui possibly as a result of contact with Cook Islands Maori. It is applied to the juveniles of this species.

#54 PEP *luhi ‘C. lugubris’

PUK lui, EAS ruhi, MQS uhi, TAH, RAP, TUA ruhi, MAN, CIM ru’i

#55 PPN *lupo(lupo) ‘Caranx spp.’


Unless noted otherwise, all reflexes denote C. sexfasciatus. Note the irregularity in the final vowel of the Luangia and Hawaiian forms, and first vowel of the Mangaia form, and excrescent initial vowel in Hawaiian.

#56 PNP *komuli ‘C. sexfasciatus (Quoy & Gaimard), horse-eye jack’

TOK komulo, PUK kōmuli, HAW omulu ‘C. melampygus’, TAH omuri, RAP omuri ‘Carangoides ferdau’ (Forskal), TUA komuri, CIM komuri, ‘C. lugubris’ (Bacquie 1977)

The description in McEwen’s (1970) dictionary is consistent with the habits of C. melampygus.
#58 PPN *teu ‘Caranx sp.’
PCP *jęu ‘Caranx sp.’ (Geraghty)
TUV, TIK teu ‘Caranx spp.’, ANU tetu ‘Caranx sansun’ (Forskål), Papuan trevally

#59 PPN *kata ‘Caranx spp., or growth term for Caranx’
PCP *i-kata (Geraghty)

Of interest also are EUV kita ‘archaic, troupe de poissons’ (Rensch 1983), EFU kata ‘troupe de poissons’, TIK kata ‘large’, and two other Tokelauan meanings of kata: ‘school of black jacks or school of sharks’ and ‘a skipjack which seeks refuge or protection by the side of a fishing canoe when it is being pursued by a larger fish’.

#60 PPN *filu ‘Carangidae sp.’
PCP *viJu (Geraghty)
TON, NTP filu ‘Caranx sp.’, EUV filu ‘Carangidae spp.’

Like *teu, this term is of very limited distribution in Polynesia, but the reconstruction is supported by cognates in Fijian and Gitua.

#61 PNP *alaala(futu) ‘Carangidae spp.’

The loss of initial /a/ in Mele Fila is regular. The species identifications given by Lincoln (n.d.b) for the Taumako form are both Carangidae and both silver with black dots, but otherwise there is little resemblance between them.

#62 PPN *soke(lau) ‘Caranx sp.’, PNP *soke ‘Trachinotus bailloni, pompano or swallow-tail jack’
TON hokelau ‘black pomfret’, EUV hokelau ‘Carangoides gilberti’, TOK hoke, PUK yoke, MQS hoke, TUA hoke ‘Trachinotus bailloni’, MAO hoki ‘Macruronus novaezelandiae (Merlucciidae)’

A sound species-level identification for PNP. The reflexes show perfect phonetic and semantic correspondence except for the New Zealand Maori word, which refers to a quite dissimilar fish, related to the hake, and should perhaps not be included here, given the discrepancy in the final vowel.

#63 PNP *pakewa ‘Carangoides ferdau jordan, black-spot jack’
TOK pakeva, PUK pakeva, TUA pakeva

As with the previous set, there are not many reflexes but they are widely distributed geographically. See also Clerk (1981:177).
Another very small set. It is possible that the East Uvean word may refer to more than one variety of fish.

Reliable glosses have not been obtained for Tongan and Niuatoputapu. The Rennellese form represents a marked semantic shift. Otherwise most glosses point to Chorinemus tol, so that we can certainly make this identification at PNP level, possibly at PPN.

One of the more important food fish and one of the most widely distributed fish names. The New Zealand Maori form shows phonological changes in the first syllable but the species are closely related.

Not much to go on here, just a puzzling network of tenuous semantic connections. Clerk (1981:143) comments on the resemblance between P.tile (a Lutjanid) and the scads; Mangaians perceive them as similar in both appearance and behaviour. Geraghty (this volume) reconstructs PPN *suli [sic] and PCP *(c,s)uli ‘Caesio sp.’, on the basis of TON huli, SAM ulisega, and FIJ (c,s)uli(c,s)uli. The Tongan and Samoan reflexes would support a PPN reconstruction of *huli, since for PPN *s one would expect Samoan /s/, but I have been unable to obtain semantic information on the Tongan form which would help in establishing a reliable species identification for PPN. As Geraghty points out, if the two forms are cognate, NIU ulihenga is probably a borrowing from a Nuclear Polynesian language. Decapterus is an important food fish in Eastern Polynesia (see below, *kopeIu); in Tokelauan it is valued most as a bait for tuna fishing. Unfortunately I have not been able to find words for this species in any other Western Polynesian language except Tuvalu, where it is called atule, elsewhere the name for Selar crumenophthalmus.

The TAH uri, ‘N. dactor’, belongs to the same family as Decapterus (see Tokelauan reflex) but bears little resemblance to it, and a more likely source for the name can be found in the set *talitali?uli(see #100).

Note in addition to the above, MQS (Ua Huka) ku‘io ‘Pterocaesio sp.’ and TAH ‘urio ‘P. tile’.
#68 PEP *kopelu 'Decapterus spp.'
Puk *kopelu, HAW *opelu, MQS kōpe'u ‘sorte de poisson’ (Dordillon 1931), 'operu ‘Decapterus sp.' (Lavondès 1977), TAH *operu, TUA kōperu, MAN, CIM kōperu, MAO kōheru 'Decapterus koheru'

Found in Eastern Polynesian languages and in Pukapukan. The New Zealand Maori term has an irregular correspondence in the second consonant, but the species very closely resembles *D. pinnulatus*. Pukapukan, Cook Islands Maori and New Zealand Maori have a long ō in the first syllable.

#69 ?PNP *kamai 'Elagatis bipinnulatus, rainbow runner'

TOK, TUV, PUK kama; note also KIR kamaa (Taumaia & Gentle 1983).

A fish name which I have found only in these four languages, but with perfect semantic correspondence. Given the possibilities of diffusion, I am only tentatively suggesting a reconstruction.

**CORYPHAENIDAE**

#70 PPN *masimasi 'Coryphaena hippurus, dolphin fish'

TON NTP mahimahi, EFU masimasi 'nom d’un poisson’, SAM masimasi, TOK mahimahi, TUV masimasi, KAP mahimahi, TIK masimasi, HAW, MQS mahimahi, CIM ma'ima'i

Widely distributed term for this notable fish. The Pukapukan innovation is fittingly distinctive: kanakanālangi.

**CAESIONIDAE**

#71 PPN *tikawa 'fish sp.'

PCP *tikuwa 'Caesio sp.' (Geraghty)

SAM ti‘ava, TOK tikava ‘tuna baitfish, *Mulloidichthys* sp.’ (Gillett 1985), TIK tikava ‘small marine fish (perhaps *Amentum* sp.)’ (Firth 1985).

The PPN form is reconstructed on the basis of Geraghty’s data. As the Tokelauan reflex is the only one for which I have reliable semantic information, it is impossible to suggest a species identification for PPN. For Caesionidae, see also the discussion under #67, *huli and *uliseŋa.

**LUTJANIDAE**

#72 PPN *tagaʉ 'Lutjanus spp., red or yellow in colour'


See section 4 for a discussion of this and the following four cognate sets. The metathesised Pukapukan form was supplied by K. Salisbury (pers. comm.).
#73 PPN *sa(a)putu 'Lutjanus sp.'
PCP *(c,s)abutu 'Lutjanus or Lethrinus sp.' (Geraghty)
TON hoputu 'Lethrinus miniatus, possibly also Lutjanus gibbus', EUV hoputu tokelau 'Lethrinus chrysostomus (Richardson)', TOK hāputu 'Lutjanus rivulatus, Maori snapper', NUK saabudu 'fish sp.', TIK saputu 'Lethrinus kalopterus', TAH haputu 'L. rivulatus', TUA haputu 'Cephalopolis argus, blue spotted cod', CIM aputu 'Kuhlia sp.'
The Tahitian word is given in Bagnis et al. (1972) but does not appear in any of the dictionaries. The Cook Islands Maori form is included on the basis of identifications from Mangaia (Bacquie 1977) and Aitutaki (K. Salisbury, pers.comm.), and manifests a marked semantic shift, as does the Tuamotuan reflex.

#74 PPN *fagamea 'red Lutjanus spp., especially L. bohar red snapper'
Very good semantic and phonetic correspondence across a wide area. The -mea is dropped in Pukapukan and Marquesan; cf. PPN *mea 'red'.

#75 PPN *ta'aiwa 'Lutjanus monostigmus, black spot snapper'
PCP *taciwa 'Lutjanus sp.' (Geraghty)
NTP ta'iva ? 'snapper', SAM ta'iva 'Lutjanus sp.', ta'iva uliuli 'L. monostigmus', TOK tāiva, TUV tāiva, PUK tāiva, MQS, TAH tāiva, all glossed 'L. monostigmus'
Very consistent glosses, and the glottal stop in the Niuatoputapu reflex suggests a Tongan origin, but pending more detailed semantic information from Niuatoputapu, the PPN identification must remain tentative.

#76 PPN *taae?a 'Lutjanus sp., probably L. gibbus'
PCP *taae?a 'L. gibbus' (Geraghty)
EUV tāea 'L. fulviflamma Forskål', TOK tāea 'L. gibbus, paddle-tail snapper', TUV taea 'L. fulvus (Zann 1980), L. gibbus (Zann 1980; Taumaia & Gentle 1982)', PUK tāea 'L. gibbus', NUK, KAP daaea 'snapper sp.', MVA, TAH (ISLV), TUA tāea 'L. gibbus', CIM taea 'L. monostigmus'
As with the previous set, the glottal stop in the East Uvean word suggests a Tongan origin, thereby raising the possibility of a PPN reconstruction.

#77 PPN *t(a,o)kape 'Lutjanus kasmira, blue-lined sea perch'
PCP *takabe 'L. kasmira' (Geraghty)
KAP dagabe 'fish sp.', TIK, ANU tokape 'L. carponotatus', TAU takape 'L. kasmira', HAW ka'ape'ape(hā) 'deep sea fish said to resemble the moano', MQS kokape, tekape, (North), te'ape (South), TAH ta'ape 'L. kasmira', RAP takape 'L. kasmira'
On the basis of the Fijian reflex cited by Geraghty, we can take this to be the earliest PPN specific term and #78 an innovation, either a variant in PPN or arising later and spread by borrowing.
#78 PPN *sawane 'Lutjanus kasmira, blue-lined sea perch'
TON, NTP havane, EUV havane 'Lutjanus spp.', SAM savane, TOK havane
Limited distribution, but perfect semantic correspondence; a fish of very distinctive appearance.

#79 PPN *muu 'Monotaxis grandoculis (Forskål), tropical porgy'
PCP *muu (Geraghty)
TON, NTP, EUV, SAM, TOK, TUV, PUK, NUK, KAP, REN, TIK, HAW, MQS, TAH, TUA, MAN mú 'Monotaxis grandoculis', MAO muu, synonym of mohi 'a sea fish'
No doubt at all about this one. The solitary nonconformist is Niuatoputapu, where the term for this species is hikuila. In Nukuoro, and possibly elsewhere, the name muu is used for a number of snapper varieties in addition to M. grandoculis (Carroll & Soulík 1973).

#80 PPN *?uto 'Aphareus furcatus, small-toothed jobfish', 'Etelis carbunculus, squirrel fish snapper', 'Pristipomoides argyrogrammicus, big-eyed snapper' and 'Tropidinius zonatus, flower snapper'
Reflexes are recorded from the following languages: TON, NIU, EUV, EFU, NTP, SAM, TOK, TUV, PUK, NUK, KAP, TIK, ANU, MQS, TAH, TUA, RAP, CIM. The names of these fish species are usually binomial terms, of which a reflex of *palu is the head (e.g. NIU palu heahea, TOK palu hega, PUK palu yengayenga 'flower snapper'). See Hooper (1991) for a detailed account of the distribution of these terms and the fishing methods associated with this group of deepwater fish species, and see also section 4.

LETHRINIDAE

#82 PNP *fiLoa 'Lethrinus sp.'
TON filu 'Carangidae spp.', SAM filoa ava 'Lethrinus miniatus (Schneider), long-nosed emperor'. TOK, TUV filoa 'L. miniatus', PUK yiloa 'L. miniatus', NUK hiIoa 'fish sp.', KAP hiIoa 'fish sp.', TIK firoa 'Lethrinus sp.', TAU hiIoa 'Lethrinella variegata' (Lincoln n.d.b), WFU firoa muru (Capell 1984), CIM firoa 'L. miniatus'
The Tongan form may or may not be cognate. The Cook Islands Maori reflex allows us to make a PNP reconstruction. Elsewhere in Eastern Polynesia the name of this fish seems to be a local innovation.

#83 PPN *gutula 'Lethrinus sp.'
PCP *gutula (Geraghty)
TON ngotula 'k.o. fish', TOK gutula 'L. miniatus, juveniles', TUV gutula 'L. variegatus' (Zann 1980), NUK ngudula 'snapper sp.', PIL gutula 'Lethrinella miniata' (Lincoln n.d.b), WUV ngutula 'poisson au bec rouge et ressemblant au bec de cane'
The PCP reconstruction allows us to make a PPN identification (cf. gutu 'mouth', possibly a reference to the head shape of L. miniatus). However this shape is not so pronounced in the case of L. variegatus.
RECONSTRUCTING PROTO POLYNESIAN FISH NAMES

#84 PPN *kulapo 'fish sp.'
PAN *kurapu(q), POC *kurap(o,u) 'fish sp.' (Blust 1972a), PCP *kulabo 'Lethrinidae sp.' (Geraghty)
TON kulapō 'k.o. fish' (Churchward 1959), TON, NTP kulapo 'fish sp.' (Dye 1983), EUV kulapo 'Lethrinus nematocanthus (Bleeker)', SAM ulapo 'lighter coloured species of genus Scarus (parrot-fishes) when about 6 inches long' (Milner 1966), 'ulapo 'full-grown parrot fish' (Goo & Banner), TOK kulapo 'Scarbus harid (Forskål), juvenile'

A very puzzling set, with marked semantic change in the Samoan and Tokelauan reflexes. Milner gives the Samoan form without an initial glottal stop, but the near identity of the Samoan and Tokelauan glosses suggests that the correct form is 'ulapo, as in Goo and Banner (1963) (though with a different gloss!). I have been unable to establish a reliable identification for the Tongan form, although one source (Pond n.d.) gives "?Carodon Schlegeli" (cf. #110).

#85 PEP *ta(a)mule 'Lethrinus sp.'
PUK tāmule 'Lethrinus mahsena, Tuamotu emperor', MQS tamule 'poisson' (Dordillon 1931), TUA, RAP, CIM tamure 'Lethrinus spp.', MAO taamure 'Chrysophrys auratus, snapper'.

One of several names which Pukapukan shares with Eastern Polynesian languages. The semantic shift in New Zealand Maori is a well-motivated one; Lethrinus spp. are not caught in New Zealand waters, but C. auratus has a similar habitat and characteristics.

#86 PPN *maagaa 'fish sp.'
TON 'Lethrinus variegatus, variegated emperor'

Note: this fish name is widely reflected in Eastern Polynesia, with the referent Promethichthys prometheus, snake mackerel (see #127). In habitat and appearance the two species differ markedly, and the evidence does not allow us to make a more precise semantic reconstruction at PPN level.

PEMPHERIDAE

#87 PNP *manifi 'fish sp.'
PSO *manifi 'Pempheris oualensis, sweeper'
NTP mānifi, mānifi matapula 'fish sp.', WFU manifi 'fish sp.', SAM, TOK manifi 'P. oualensis', PUK pānīwi 'P. oualensis', TIK manifi 'P. oualensis'

In the absence of precise identifications for the Niua toputapu terms, we can only reconstruct this meaning for PSO. As this is a fish of distinctive appearance it is rather surprising that its name is in many languages a local innovation.

GERRIDAE

#88 PPN *matu 'Gerres spp., mojarra's'
PCP matu (Geraghty)
TON matu 'k.o. fish: like a silver bream. When full-grown it is called matulā' (Churchward 1959), NTP, EUV, SAM, TOK matu 'Gerres sp.', KAP madu 'fish sp.: mojarra', WUV matu 'Gerres sp.'
MULLIDAE

#89 PPN *wete ‘Mulloidichthys, goatfish sp.’
POC *wete (Walter 1989), PCP *wete (Geraghty, based on KIR *tewe)
TON, SAM, TOK, TUV vete, PUK vete(tea), NUK, KAP vede, REN vete, TIK vete,
HAW weke, MQS, TAH, MAN, CIM vete
All reflexes are glossed ‘goatfish’ or ‘Mulloidichthys sp.’, frequently M. samoensis.

#90 PPN *hafulu ‘goatfish, most likely Parupeneus and Upeneus spp.’
NIU hafulu ‘general term for full-sized goatfish’ (informants), SAM afulu ‘small memea’
The last named species is a small cod, pink in colour and with barbels under the chin, but
otherwise not resembling goatfish. This widely disseminated form exhibits a number of
phonetic irregularities: change in the initial vowel in Luangiua, and in the second vowel in
one of the Samoan reflexes; epenthetic initial /kJ/ in Pukapukan, Mangaia and Cook Islands
Maori, and initial glottal stop in Rennellese and Hawaiian; cf. PPN *fulu ‘hair’.

#91 PPN *malili ‘goatfish’
TON malili ‘red mullet’, TOK mālili ‘Mulloidichthys vanicolensis, non-spotted goatfish’,
TUV malili ‘Upeneus vittatus’, NUK, KAP malili ‘goatfish sp.’, TIK mālili

#92 PPN *memea ‘goatfish sp.’
TON mémea ‘a reef fish’, NTP memea ‘Parupeneus sp.’, EUV memea ‘reddish goatfish, 6-7
inches long’, EAS memea ‘Mulloidichthys flavolineatus (Lacépède)’, SAM memea ‘goatfish sp.’,
TOK, PUK memea ‘Mulloidichthys auriflamma, gold-lined goatfish’
If the East Uvean and Tokelauan glosses are scientific synonyms, as seems likely, a
tentative reconstruction confined to this species would be in order.

#93 PPN *kaloama ‘goatfish’
TON kaloama ‘young vete (Mulloidichthys)’, NTP kaloama ‘Mulloidichthys flavolineatus
(Lacépède)’, NIU kaloama ‘goatfish, small, yellowish’ (informant), EUV kaloama ‘M. flavolineatus’, SAM aloama ‘k.o. fish’, TUV kalo ‘Mulloidichthys auriflamma’ (Zann 1980;
?synonym of above), PUK kalōma ‘yellow mullet’ (Beaglehole & Beaglehole 1938), KAP
gala ‘goat fish sp.’, MQS ka’oa ‘Upeneus vittatus’ (North), ‘Mulloidichthys sp. (South),
MAN koama, koama vete ‘M. samoensis, M. vanicolensis’, CIM koama ‘young vete, 6
inches’ (Bacquie 1977), MAO koroama, koroamo ‘a small fish’

#94 PPN *matu?ulau
PCP *matu?ulau ‘Parupeneus sp.’ (Geraghty)
NTP matu‘ulau ‘goatfish’, EUV (moaga) matu‘ulau ‘Parupeneus spp.’, SAM matūlau
‘Pseudupeneus sp.’, KAP madu-ai-lau ‘goatfish sp.’, TIK motūrau ‘small goatfish’, MQS
matu‘au ‘Parupeneus spp.’
On the assumption that the Niuatoputapu and East Uvean forms are of Tongan origin, as indicated by the glottal stop found only in these two languages, I am reconstructing /l/ as the final consonant (cf. Geraghty's *matu?u(r,l)au).

**#95 PNP *moaga** ‘Parupeneus spp.’
EUV moaga ‘Parupeneus sp.’, SAM moaga, moana ‘Parupeneus sp.’, TOK moaga ‘Parupeneus spp.’, PUK moanga ‘small goatfish of all varieties’ (tentative), KAP moanga ‘goatfish’, TIK moanga ‘goatfish’, HAW moana ‘Parupeneus sp.’, MQS moana ‘Parupeneus sp.’ (South), TUA moaga ‘Parupeneus sp.’

Note the irregular final vowel in the Hawaiian reflex.

**KYPHOSIDAE**

**#96 PPN *(na)nue** ‘Kyphosidae, rudderfishes’
PCP *renua ‘Kyphosus’ (Geraghty)
TON, NIU nue, SAM, TOK, TUV, PUK, SAM, TOK, TUV, PUK, TIK nane, EAS nänue, HAW nanue, MQS neneu, TAH, MAN nanue, MAO nanua ‘Cheilodactylus spectabilis morwong, red moki’

A very widely distributed fish name. All glosses except New Zealand Maori refer to *Kyphosus* spp. Bagnis et al. (1972) identify TAH nanue as *K. cinerascens*. See Randall and Cea Egaña (1984) for a list of binomials applied to varieties of *K. bigibbus* (Lacépède) in Easter Island. The New Zealand Maori form has an irregular correspondance in the final vowel and the species have little in common.

**CHAETODONTIDAE and ZANCLIDAE**

**#97 PPN *tifitifi** ‘butterfly fish’
PRO *tipitipi* (Walter 1989), PCP *tivitivi* (Geraghty)
TON silisifi, NIU tifitifi ‘Chaetodon spp.’, SAM, TOK, TUV tifitifi ‘general name for Chaetodontidae’, PUK tiwititi, NUK, KAP dihidhi, TIK tifitifi ‘angelfish’, WFU shishshifi ‘angelfish and butterfly fish’, shishshifi kaiao ‘*Zanclus* sp.’ (kaiao ‘plume’) (Fakamuria n.d.), EAS tipiti'iuri ‘*Chaetodon* litus (Randall & Caldwell)’, tihiti hoe ‘*Forcipiger flavissimus*’ (Jordan & McGregor), HAW kihikihi ‘*Zanclus canescens, Chaetodon* sp. and *Zebrasoma veliferum*’, MQS patihi ‘butterfly fish’, MAN, CIM tititi ‘butterfly fish’

Note also HAW ulua kihikihi ‘*Alectis ciliaris*’, a striking lozenge-shaped Carangid with long trailing streamers like those of *Z. canescens*, and TUV tetaetifi otua ‘*Chelmon* sp., beaked butterfly fish’.

**#98 PSO *lauaau* ‘*Zanclus canescens*, Moorish idol, *Chaetodon* spp.’
SAM lauaau ‘Heniochus sp. (Chaetodontidae)’, TOK lauaau ‘*Zanclus canescens*’, TUV lauaau ‘*Chaetodon auriga* and *Platax* sp., batfish’ (Zann 1980), PUK lūlūau ‘*Z. canescens*’, REN gaugauhau ‘general name for butterfly fish when dominantly striped’ (Elbert 1975), TIK raurauau
POMACENTRIDAЕ

#99 PPN *mutu(mutu) 'fish spp., probably Pomacentridae'
PCP *mutu(d)u 'Abudefdulf' (Geraghty)
TON mutumutu 'k.o. fish', NTP mutu 'Abudefdulf septemfasciatus', NIU mutumutu 'small grey fish with dark vertical bands and a yellowish patch on back', EUV mutumutu 'Abudefdulf sordidus (Forskål), sergeant major', SAM, TOK mutu 'Abudefdulf spp.', TUV mutumutu 'Pomacentridae', TIK, ANU mutu 'general term for Pomacentridae', WFU mutu 'toadfish' (Fakamuria n.d.)

A variety of secondary lexemes are recorded for Tokelauan, including mutufatu, mututea and mutulei, referring to dark, light, and small species respectively. In Eastern Polynesian languages, mutu has been replaced by a variety of other terms. Note however MAO mutumutu 'a fish, prized for its delicacy'. The toadfish (West Futunan) bears no resemblance to Pomacentridae.

ECHENEIDAE

#100 PPN *talitali?uli 'Echeneis sp., remora, and Naucrates ducor, pilot fish'
TON teliteli'uli 'pilot fish' (Churchward 1959), NTP teliteli'uli 'remora', NIU tolitoliuli 'Echeneis sp.', EUV talitali'uli 'Echeneis and Remora spp.', SAM talitaliuli 'pilot-fish (Leptecheneis sp.)' [sic.] (Milner 1966), TOK talitaliuli 'fish parasites which include the pilot fish (N. ducor), cleaner-fish or paradise fish (Labroides dimidiatus) and the teletelevakaniu or suckerfish (Ecneneis naucratorers)', PUK talitaliuli 'Echeneis sp.', KAP danedaneauli 'E. naucrates', LUA kauliuli 'slender sucking fish', TIK taritari 'suckerfish', WUV taliuliuli 'poisson: suçon', EAS (mângo) taritari 'Naucrates ducor', MQS (Nuku Hiva) tatai'i 'E. naucrates and Remora remora', TAH tiaiaturi 'E. naucrates', TUA kakariuri 'E. naucrates', MAN taritari

Common glosses of 'support' or 'wait upon' for reflexes of PPN *talitali relate well to the habits of pilot fishes and remoras, both of which are closely associated with sharks. Milner’s gloss for the Samoan name exemplifies the confusion between these two unrelated species which obtains at the level of vernacular naming in both European and Polynesian cultures. The 'pilot fish' is Naucrates ducor, a Caranx, whereas the name Leptecheneis is an obsolete scientific synonym of Echeneis. Christian Clerk (1981) gives the etymology 'carried about' for MAN tati. This casts some light on the Tahitian form, since tiatia also means 'to carry or convey' (Davies 1851). PPN *?uli 'to steer' seems an obvious source for the final morpheme rather than *?uli 'black', since E. naucrates is a greenish-grey and N. ducor is bluish, green and silver. Note the irregular correspondence /k/ for /t/ in Tuamotuan, and in West Uvean the reduplication of the second morpheme rather than the first.

The Tokelauan specific teletelevakaniu is not so far as I know attested elsewhere.

LABRIDAE and SCARIDAE

These are considered together, since some cognate sets contain glosses referring to both families. Many of the names for parrotfishes and wrasses appear to be local innovations.
#101 PPN *sugale 'wrasse sp.'
TON, NTP hungale 'Halichoeres centriquadrus' (syn. of Hemitautoga centriquadrus (Lacépède)), SAM sugale 'name give to wrasse spp.' (Milner 1966), TOK hungale 'Thalassoma hardwickii, six-barred wrasse', sugale paea 'H. centriquadrus'
Very limited distribution. Note also SAM fuga, 'general name given to fishes of genus Scarus when about 1 ft. long' (Milner 1966).

#102 PNP *pap(o,u) 'Cheilinus sp.'
TOK papo 'Cheilinus fasciatus (Bloch), Maori wrasse', TUV papo 'Epibulis insidiator (Pallas), Ch. trilobatus (Lacépède)', PUK papo (adult), papopapo (juvenile) 'Ch. fasciatus, NUK babu honga akau, LUA papu 'Maori wrasse', REN papu 'several kinds of dark brown wrasse fish', TAH papae mara 'Cheilinus fasciatus and trilobatus'

#103 PNP *maLa(tea) 'Cheilinus undulatus (Rüppell), Napoleon fish'
TON mala 'a large Serranid fish, like tonu', NTP mala (no semantic information), TOK, TUV, PUK malatea 'Ch. undulatus', TAH mara 'Ch. undulatus', RAP maratea 'Bodianus perditio (Quoy & Gaimard)' (Randall & Sinoto 1978), TUA, CIM maratea 'Ch. undulatus', MAO maratea 'Chironemus spectabilis, kelpfish'.
The Rapa word refers to a wrasse, but the New Zealand Maori one to a fish with no resemblance to this family. In Pukapukan the juvenile of this species is called Ialawi (see below).

#104 PPN *m(a,o)lali 'wrasse sp.'
PCP *m(a,e)rari (Geraghty)
TOK molali 'Ch. trilobatus, trilobed Maori wrasse', PUK malali 'Anampses godeffroyi' (Beaglehole & Beaglehole 1938), LUA malali 'rainbow fish' ('Halichoeres sp., rainbow wrasse), EAS mārari (male), mōri (female) 'Anampses caeruleopunctatus (Rüppell)', mārari 'Novaculichthys taeniourus (Lacépède) and Coris angulata (Lacépède), wrasse spp.'
Inexplicably, Randall and Ceauga (1984:13) do not include the two last identifications in their list of Rapanui fish names, but in the discussion at the end of the article.
Geraghty (this volume) reconstructs PCP *m(a,e)rari on the basis of Rotuman marari and Proto Micronesian *merari.

#105 PPN *ngutu1010a 'Epibulis insidiator (Pallas), or other long-nosed wrasse sp.'
TON ngutulo'loaloa 'k.o. fish', SAM gutu ume, TOK gutuloa 'E. insidiator', KAP ngutu looloo 'fish sp.', TAH (papae) 'uturoa 'E. insidiator'.
One of the few descriptive names with a fairly widespread distribution.

#106 PPN *tagava 'Cheilinus sp.'
PCP *taγava 'Cheilinus undulatus' (Geraghty)
TON tangafa 'k.o. fish', SAM tagafa 'Cheilinus sp.' TUV tangafu 'C. undulatus', TIK tangafā 'sea fish...apparently a wrasse' (Firth 1985)

#107 PPN *ufu 'wrasse or parrot fish'
TON 'ufu 'Anampses sp.,' NTP 'ufu 'Cheilinus trilobatus', SAM ufu 'the name of a fish' (Pratt 1878; not the general name for parrotfishes), TOK ufu 'general name for Scarus spp., parrotfish', PUK wū 'general name for parrotfish', NUK huu 'a number of parrot fish spp.,' KAP huu 'parrot fish sp.,' REN uhu 'parrot fish sp.,' TIK ufu 'Scarus sp.,' EAS
'uhnanga' *Leptoscarus vaigiensis* (Quoy & Gaimard), parrotfish', HAW *uhu* 'parrot fish spp.', TAH *uhu* 'Scarus lunula' (Snyder), MAN, CIM *u'u* 'Scarus spp.'

#108 PPN *lalafi* 'wrasse or parrot fish spp.'

PCP *dradravi* (Geraghty)
TON, NTP *lalafi* 'Scarus sp.', EUV *lalafi* 'Cheilinus spp.', SAM *lalafi* 'Cheilinus sp. wrasse', TOK *lalafi*, *lafafi* 'juvenile growth terms for Cheilinus undulatus', PUK *lawi* 'Sc. harid yellow parrotfish', *lalawi* 'Cheilinus undulatus, juvenile' (informant), 'Ch. unifasciatus' (Beaglehole & Beaglehole 1938), KAP *lalahi* 'fish spp.'

A name which appears to have dropped out of Eastern Polynesian languages.

#109 PPN *?ulafi* 'Scaridae spp.'

PCP *qulapi* 'parrot fish' (Walter 1989), *?ulavi* 'Scarus harid' (Geraghty)
EUV *ulafi* 'Scarus spp.', TOK *ulafi* 'Scarus sp., probably Sc. harid (Forskål), yellow parrot fish', TUV *ulafi* 'Scarus sp.', NUK, KAP *ulahi* 'parrot fish', LUA *ulahi* 'fish sp.', REN *ugahi* 'species of parrot fish with long pointed heads' (Elbert 1975), TIK *urafo* 'parrotfish'

#110 PSO *kulapo(o)* 'parrot fish spp.'

TON *kulapō* 'k.o. fish', NTP *kulapo* (no semantic information), SAM *ulapo* 'full grown parrot fish' (Goo & Banner 1963), 'lighter-coloured species of genus Scarus...when about 6 inches long' (Milner 1966), TOK *kulapo* 'Sc. harid, juveniles'

Compare #84.

#111 PPN *kamutu* 'Scarus sp.'

PCP *kam(o,u)tu* 'female Scarus sp.' (Geraghty)
TON *kamutu*, TOK *kāmotu* 'Scarus jonesi'

I have not myself been able to establish an identification for the Tongan reflex, but am including this name on the strength of Geraghty's PCP reconstruction, based on Tongan and Tokelauan and the Fijian *kāmotu* 'Scarus sordidus, female'.

#112 PPN *mamanu* 'Scarus spp., parrot fish'

TON *mamanu* 'parrot fish', SAM *mamanu* 'reddish-brown species of genus Scarus' (Milner 1966), TOK *mamanu* 'Sc. chlorodon' (Forskål), ocean parrot fish', TUV *mmamuo* 'Scarus spp.'

#113 PSO *la?ea* 'parrot fish spp. with bulging foreheads'

SAM *laea* 'several varieties of large green and blue parrot fish', TOK *laea* 'Scarus jonesi (Streets), tattooed parrot fish, *Sc. gibbus* (Rtippell), big blue parrot fish', TUV *laea* 'Scarus sp.', REN *ga?ea* 'general name for some parrot fish', EAS *ra?ea* 'Cheilodactylus plessisi (Randall), morwong', HAW *lae nihī* 'name applied to various high-headed labroid fishes'

There is an obvious semantic connection with PPN *la?e* 'forehead', and the Hawaiian name is so obviously descriptive (lit. 'steep forehead') that it can't be regarded as necessarily part of the same set.

BLENNIIDAE

#114 PPN *{(m,p)anoko}* 'Blenniidae spp., blennies'

NTP *manoko*, EUV *panoko*, EFU *manoko* 'nom d'un petit poisson', SAM *mano'o* 'gobies, mudskippers', NUK, REN *manoko*, TIK *panoko*, ANU *panauko* (Lincoln n.d.b), TAU
panoko, EAS pāroko ‘blennies and gobies’, HAW pāno‘o, pāo‘o ‘name for several varieties of o‘opu [PEP *kookopu ‘gobies’], MQS pāoko, MAO paanoko ‘Cheimarrichthys fosteri, sandperch’

All glossed ‘blenny’ unless otherwise indicated.

The innovation of initial /p/ for /m/ is established throughout Eastern Polynesian, but its occurrence in other Nuclear Polynesian languages (East Uvean, Tikopian, Anuta and Taumako) requires explanation.

ACANTHURIDAE

#115 PPN *

*manini ‘Acanthurus triostegus (Linne), convict tang’

TON manini, NIU manini ‘Cirrhites spp. handfish’ (informant), EUV, EFU, SAM, TOK, PUK, KAP manini, LUA magi, TIK, MEF manini, MQS menini, TAH, RAP, MAN manini

All reflexes except for Niuatoputapu glossed A. triostegus. For this species my informant gave the name tukusea. It is hard to imagine anyone making a mistake about such a striking and common variety, but nevertheless this information is suspect. Note that Niuatoputapu also has the form 'ulutuki for Cirrhites spp. (see #51 and cf. FIJ manini, which Geraghty (this volume) suggests may be a PN loan).

#116 PPN *

*hapi ‘Acanthurus guttatus (Schneider), spotted surgeon fish’

PCP *(c,s)abi (Geraghty)

TON (NTP), NIU hapi, EUV, TOK, TUV api, NUK, KAP abi, REN api ‘some species of surgeonfishes’, TIK api, HAW ‘api, MQS *api, TAH api, MAN ‘api ‘general term for many varieties of surgeonfish’, CIM api

#117 PPN *

*pala'I)i ‘Acanthurus sp. of large size and elongate shape’

PCP *mpalangi ‘Acanthurus sp.’ (Walter 1989)


All reflexes are regular except for the Tokelauan one, in which the velar nasal is replaced by an alveolar nasal and there is an initial a. For the maito of the Cook Islands Maori form, see below PEP *maito.

#118 PPN *

*aologo ‘Acanthurus sp., probably A. lineatus (Linnaeus)’

Eastern Polynesian languages appear to contain no reflexes of this etymon. For the Tokelauan semantic shift, see also pone, below. The initial glottal stop in the Niuatoputapu and East Uvean forms suggests that they are borrowed from Tongan.

#119 PPN *ma?ito ‘Acanthuridae, possibly Ctenochaetus striatus (Quoy & Gaimard)’

PCP *ma?ito ‘Ctenochaetus’ (Geraghty)


Bacquie’s (1977) data for Cook Islands Maori suggests that maito is the generic term for Acanthurus spp. He cites a number of secondary lexemes, including maito parangi ‘A. xanthopterus’.

#120 PPN *pone ‘Acanthurus sp. or Ctenochaetus striatus’


The situation in Tokelauan is curious: C. striatus, generally named alogo, is called pone when it forms schools at spawning season and is netted on the reef in huge quantities, after the first thunderstorm in September. The extension of this name to other genera in Pukapukan and Tokopian can be accounted for by the bright colouring of the species in question.

Geraghty (this volume) comments that FIJ pone ‘Acanthus sp.’ may be a Polynesian loan.

#121 PPN *?ume ‘Naso sp., unicorn fish’

PCP *?ume (Geraghty), POC *qume (Walter 1989), PAN *qumay/*qumi


Wide distribution and complete regularity except for the initial glottal stop in Hawaiian. Dye (1983:270) and Rensch (1983:72) give a number of varietal names.

#122 PNP *ta(a)tifi ‘Naso spp., unicorn fish’


#123 PPN *ma(h,s)a ‘Acanthus sp.’

TON maha ‘k.o. leatherjacket’ (Churchward 1959), PUK mā ‘C. striatus’, mā pate ‘H. bariene i.e. Acanthus spp. (Beaglehole & Beaglehole 1938)’, TIK ma [sic]’Acanthus
bleekeri' (Firth 1985), TAU mā ‘A. xanthsoperus’, REN masa ‘k.o. small fish’, MEF maa, WFU hmaa ‘dark surgeon fish sp., like Acanthurus pyroferus (Kittlitz)’ (Fakamuria n.d.), MQS maha ‘A. pyroferus’, maha puafau ‘A. glaucopareius (Schneider)’, RAP ma’ama’a ‘A. leucopareius (Jenkins)’

A somewhat puzzling set, Nuclear Polynesian reflexes with a long vowel suggesting PPN *maha, those with /h/ or /s/ suggesting *masa. However, on the basis of FIJ masa ‘Zebrasoma scopas’, Geraghty (this volume) reconstructs PCP and PPN *masa. The short vowel in the Tikopian form is undoubtedly due to the orthographic conventions of the source.

#124 PPN *?afali ‘Acanthurus sp.’
PCP *?avali (Geraghty)

GEMPYLIDAE

#125 *?palu ‘Ruvettus pretiosus (Cocco), oilfish’
TON valu maka ‘R. pretiosus’, palu maka ‘Thryssitoides marlayi, snake mackerel (both from Mead 1980b), NIU palu, palu pō, palu tehi, TOK palu, palu pō, palu gatae, palu tupua, TUV palu, palu maoni ‘true palu (which include palu fala and palu lavenga)’, PUK palu, palu taeyi, palu fala, TIK paru fara, HAW valu, TUA pāruhi ‘a variety of fish, the ruvettus oilfish’ (Anaa Is)

On purely linguistic grounds, palu can be reconstructed for PPN with the identification Ruvettus. However, see Hooper (1991) and section 4, for a discussion of other factors, including archaeological evidence, which suggest that Ruvettus fishing may have been a late Samoic-Outlier development, originating in the area of Tuvalu and Tokelau. Similar considerations affect the reconstruction of a precise identification for *kapoa (below). Although Ruvettus fishing was not practised in Tonga, Mead (1979) gives a term for the fish, valu maka. This may be a coinage analogical to palu maka. However, see also the Hawaiian form valu which presents a problem (discussed in Hooper 1991), and cf. PPN *walu, #132.

#126 PPN *kapoa ‘fish sp., probably Plotosus sp., catfish’
TON kopa ‘catfish’, NTP kopua (no semantic information), EUV kapoa ‘Plotosus lineatus (Thunberg), catfish’, SAM ’apoa ‘Plotosus anguillaris (Bloch)’ [synonym of the above], TOK, PUK kapoa ‘Promethichthys prometheus (Cuvier), snake mackerel’, MEF ikaapoa ‘Plotosus anguillaris’ (tentative identification)

This term is included under Gempylidae for convenience, on the basis of the Tokelauan and Pukapukan reflexes, as no other terms for catfish were reconstructable. An elongate shape provides the semantic continuity between these two species. P. prometheus is caught in association with Ruvettus, and the absence of a word for this species in Tongan and Samoan is explained by the fact that Ruvettus fishing was not practised in those islands. In Eastern Polynesian languages the word for Promethichthys is usually mangā.
#127 PPN *maŋaa ‘fish sp.’
Pep *maŋaa ‘Promethichthys prometheus, snake mackerel’
Ton, Ntp maŋa ‘fish sp.’, Euv maŋa ‘fish sp.’, Tah maŋa ‘P. prometheus’, Tua,
Man, Cim maŋa ‘P. prometheus’, Mao maŋa ‘Thrysites atun’ (Gempylidae)

The Niu name for *P. prometheus* is matimati, a local innovation.

According to Nordhoff (1930:225-226), the Tahitian name is borrowed from Cook Islands Maori, with the irregular correspondence /k/ instead of /f/ for CIM /ŋ/.

The New Zealand Maori form shows excellent semantic correspondence: of the two members of this family familiar to the Maori, the barracouta resembles *P. prometheus* the most closely.

**Scombridae**

#128 PPN *pa’ala ‘Acanthocybium solandri* (Cuvier), wahoo
Pro *mapanda ‘A. solandri’ (Walter 1989)
Niu pa’ala ‘A. solandri’ (Mead 1980a), Euv pa’ala ‘Scomberomorus commerson’ (Lacépède), Spanish mackerel’, (Rensch 1983), Sam pa’ala ‘k.o. fish’, Tok, Tuv, Puk pa’ala ‘A. solandri’, Lau pa’ala ‘large scaled tunny fish’, Tik pāra ‘A. solandri’, Tah paere,
Man pa’ara ‘A. solandri’ (Clerk 1981), Cim pa’ara ‘A. solandri’ (Bacquie 1977), Mao pa’ara ‘Lepidopus caudatus, frostfish’

The Tahitian word for wahoo is so divergent that it perhaps should not be included in this set. This large, powerful and predatory pelagic fish is an important food source for those areas where it is caught. Other names make reference to its shape or habits, for example Hau and Tua ono, a name usually associated with barracuda, *Sphyraena* spp., also Tua roroa (‘long’). The New Zealand Maori referent *L. caudatus* belongs to the same suborder of Scombroidi and is a slender, sharp-toothed, scaleless fish described by Ayling and Cox (1982) as “excellent eating”.

#129 PPN *atu ‘Katsuwonus pelamis’ (Linnaeus), skipjack
Pcp *atu ‘bonito’ (Geraghty), Poc *atu ‘bonito’ (Walter), Pan *atu ‘tuna’
Ton ‘atu, Euv ‘atu, Ef, Sam, Tok, Tuv, Puk ‘atu, Nuk, Kap ‘atu, Luv ‘atu, Ren ‘atu, Tik ‘atu, TAU ‘atu ‘Parathunnus mebachii’ (Kishinouye), big-eye tuna, Cybiosarda elegans, leaping bonito, *Stomoxys marlina, black marlin*, Hau ‘atu, Tah ‘atu (obsolete, found only in Davies (1851), glossed ‘the same as auhopu’), Cim ‘atu, Mao ‘atu ‘a fish’, atu(rere) ‘a fish, highly prized’ (Williams 1957)

All glossed *K. pelamis* except where otherwise indicated. The fact that Lincoln’s material does not include names for *K. pelamis* seems to me to cast some doubt on the identifications given for TAU *atu*. In Tahitian, *atu* has been replaced by auhopu, and this term has been borrowed into Easter Island as ‘auhopu’ and into Cook Islands Maori as au’opu, synonymous with *atu*.

#130 PPN *taku(a,o) ‘large tuna or skipjack’
Ton taku ‘k.o. fish’ (Churchward 1959), Niu takua ‘Katsuwonus pelamis’, Sam ta’uo ‘large bonito caught by trawling from cutters’ (Milner 1966), Tok taku ‘Neothunnus macropterus’ (Schlegel), yellowfin tuna, when very large’, Tuv takua ‘N. macropterus yellow fin tuna, over 8 kg.’ (Zann 1980), Puk *taku ‘obsolete term, but known from chants; a fish caught by noosing’ (K. Salisbury, pers.comm.), Nuk, Kap dagua ‘yellowfin
tuna’, REN takua ‘k.o. very rare porpoise’, TIK takua ‘Xyphias gladius, swordfish, Makaira indica (syn. Istiompax indicus), black marlin’

A term which appears to have disappeared from Eastern Polynesian languages. The semantic shift in the Tikopian case is a not unlikely one.

#131 PNP *kakasi ‘Thunnus albacares (Bonnaterre), yellowfin tuna’

All glossed ‘yellowfin tuna’ except where otherwise indicated. The Pukapukan reflex may be the result of a tendency in Pukapukan to elide /y/ in intervocalic position (K. Salisbury, pers.comm.). The Cook Islands Maori form for its part seems to have been borrowed from Tahitian, with subsequent substitution of glottal stop for /h/. The Rapa form is very irregular but seems worth including.

#132 PPN *walu ‘Scombridae’
PNP *walu ‘Gymnosarda unicolor (Rüppell) dog-tooth tuna’ (syn. Gymnosarda nuda)
PCP *walu (Geraghty)

Dye (1983) for Niutatoputapu, Rensch (1983) for East Uvean and Firth (1985) for Tikopian list a number of binomials denoting varieties of tuna. Once again the Rapa reflex is irregular. The modern Tahitian form can be compared with va’u ‘eight’ for expected varu. The Easter Island and Tuvaluan forms are presumably borrowed from Tahitian or Marquesan. See Hooper (1991) for comments on the presumed semantic shift in the Hawaiian form.

#133 PNP *tawatawa ‘Euthynnus yaito, black tuna, or G. unicolor, juvenile’

Note also Kiribati tavatava ‘G. unicolor’ (Taumaia & Gentle 1983). This name presents difficulties of identification possibly complicated by synonymy of scientific terms. I am confident of the Tokelauan identification, both on morphological grounds and because tavatava is one of the most delicious eating fish of this family, with moist white flesh; Bagnis
et al. (1972:325) describe *E. yaito* as 'dry and tasteless', and Herald (1962:228) mentions its less desirable dark meat.

The New Zealand Maori retained this name for what was probably the only member of this family accessible to their fishing methods.

The irregular correspondence (*Ik* / *It* elsewhere) in the Tongan form cited in Kirch and Dye (1979:67) makes a PPN reconstruction problematic. Moreover this identification is inconsistent with a later one made by Dye (1983:168), who tentatively glosses NTP *kavakava* as *Terapon* sp. and cites Tongan and Samoan cognates. Is it possible that this identification was made on the basis of the Milner (1966) dictionary entry? Of course the Tongan term may refer to both fish, but if so my informant in 1978 was not familiar with it. Teraponidae or 'tigerfish' do not resemble tunas at all, and are not closely related to them. However their appearance is consistent with Churchward's (1959) gloss. I give this cognate set below for comparison; it is too small and its status too dubious to warrant a PPN reconstruction. Note also Geraghty's reconstruction of PCP and PPN *kawakawa* 'Labridae sp.' on the basis of Fijian and Eastern Polynesian reflexes, and his comment on the relation of this to the meaning 'Teraponidae sp.'.

TON *kavakava* 'k.o. fish having small scales and longitudinal stripes: the scavenger fish' (Churchward 1959), NTP *kavakava* 'Terapon jarbua?' (Dye 1983), EUV *kavakava* 'Therapon jarbua (Forskal)' (Rensch 1983), EFU *kavakava* 'nom d’un poisson' (Rensch 1986), SAM *ava’ava* 'Terapon sp.' (Milner 1966)

#134 PPN *sakulaa* "swordfish, sailfish"

PAN *sakulayaR*

TON *hakula, haku tangata* 'Xyphias gladius (Linnaeus), Makaira sp., swordfishes', EUV *hakulā 'Makaira mazara (Jordan & Snyder)', SAM sa’ulā, TOK *hakulā ‘X. gladius and other swordfish spp.’, TUV sakulā, PUK akulā, NUK sagulaa, KAP *hagulaa ‘sailfish, swordfish’ LUA sa’uluaa 'southern marlin', TIK *sakura ‘sailfish’, ANU te kura ‘black marlin’, TAU te kulaa ‘sailfish’, HAW a’u, MQS hakū ‘Makaira spp.’ TAH ha’urā, TUA hakurā ‘black marlin’, CIM ‘akurā, MAO haku ‘Seriola grandis, kingfish’, hakuraa ‘Scamperdown whale’ and ‘Polyprion oxygeneios grouper, when large (syn. of hapuku)’

Compare PPN *laa ‘sail’. This morpheme has disappeared from the Hawaiian reflex and from some forms in Niutoputapu and New Zealand Maori. All reflexes are identified as swordfish, marlin etc. except for New Zealand Maori. The semantic shift of MAO *haku* to another pelagic gamefish, the kingfish, is well motivated, but somewhat surprising: *X. gladius* was known to the Maori, who called it *paea*. The referents of MAO *hakuraa* are even less explicable.

#135 PPN *nofu ‘Synanceja verrucosa* (Bloch & Schneider); Scorpaenidae spp., scorpion fish and stone fish spp.’

PCP *novu (Geraghty), POC *nopu, (Walter 1989), PAN *nepuq*

TON, EUV, EFU, SAM, TOK, TUV *nofu, PUK nou, NUK, KAP, LUA, REN, TIK, WUV *nofu, EAS, HAW, MQS, TAH, TUA nohu, MAN, CIM no’u, all glossed 'scorpion
fish’, MAO nohu ‘a fish with poisonous spines, like a porcupine fish, but reddish in colour’ (Williams 1957).

A folk generic that is widely reflected, as befits a dangerous and singular-looking species. Many binomials are recorded. Note also MAO matuwhapuku ‘grandfather hapuku’, the most common name for the scorpion fish Scorpaena cardinalis.

#136 PSC *saku(saku)ele, PEP *tataraihau ‘Pterois spp., zebra fish’
EUV hauhauele ‘Pterois spp.’, SAM sa’ulele ‘k.o. fish’ (Milner 1966), TOK hakuhakulele ‘P. antennata (Bloch)’, KAP hauihau ‘P. volitans (Linnaeus)’, TIK sakurere ‘spiny reef fish...Recognised as dangerous since spines can injure person though fish small’ (Firth 1985), TAH tataraihau ‘Pterois spp.’, MQS ta’ata’aihau ‘Pterois spp.’, CIM tataraihau ‘Pterois spp.’ (Bacquie 1977).

It is difficult to know if this is two cognate sets or one, as the Kapingamarangi form appears to relate to the Eastern Polynesian ones, and the East Uvean form appears to be a hybrid (cf. *talatala ‘prickly’ and *haku ‘needlefish etc.’). The segment hau in Kapingamarangi, East Uvean and Eastern Polynesian languages suggests a Samoan origin.

BALISTIDAE

One of the few families for which there is a general name, with numerous secondary lexemes denoting species and varieties recorded in individual languages.

#137 PPN *sumu ‘Balistidae’
PCP *cumu (Geraughty), POC *sumu (Walter)
TON, NIU, EUV humu, EFU, SAM sumu, TOK humu, TUV sumu, PUK umulenga ‘Balistes capistratus’, yimu ‘Balistes ringens’ (both from Beaglehole & Beaglehole 1938), NUK sumu, KAP humu, REN, TIK, ANU, MEF, WFU, WUV sumu, HAW humuhumu, MQS humu, TUA humu ‘Katsuwonus pelamis, skipjack; Thunnus obesus, big-eye tuna’ (Napuka Island), Conte 1988:289).

The Tuamotuan (Napuka) lexeme shows a most extraordinary semantic shift to two species of the family Scombridae. The reduplicated form humuhumu is the generic term in East Uvean and Hawaiian. A number of secondary lexemes are recorded for most languages, but most of these are local innovations. Only the following sets appear to be distributed more widely.

#138 PNP *sumuleua ‘Balistapus undulatus (Park), red-lined triggerfish’
TOK humulega ‘B. undulatus’, TUV sumulenga ‘Melichthys sp.’, PUK umulenga, TIK, ANU sumu renga ‘B. undulatus’

Compare PPN *reoa ‘turmeric; reddish-yellow colour’.

#139 PNP *umekaleva or sumukaleva ‘Balistidae, probably Alutera scripta (Osbeck), figured leather-jacket’
#140 PEP *kookili ‘Balistidae spp., trigger fish, general term’
PUK kōkili, EAS kokiri, HAW ʻōiʻi (uuwii), ʻōiʻi (lepa), TAH ʻōiri, TUA kōkiri, CIM kōkiri
Another term which Pukapukan shares with Eastern Polynesian languages.

TETRAODONTIDAE and OSTRACIONTIDAE

#141 PPN *te'ete'e ‘Arothron and Canthigaster spp., pufferfishes’
PCP *jexejexe (Geraghty)
TON, NTP te'ete'e, NIU têtê, EUV te'ete'e ‘generic term for some species of Arothron’, SAM têtê ‘immature globe fishes' (Milner 1966), TOK têtê ‘Arothron meleagris (Bloch & Schneider), white spotted pufferfish’, KAP deede ‘Sphaeroides annulatus, Gulf pufferfish’, REN te'ete'e, HAW kēkē ‘A. hispidus’, TAH têtê ‘name of a small fish’ (obsolete, Davies 1851 only), CIM têtê

#142 PPN *tautu ‘Diodon spp., porcupine fish’
PCP *tautu (Geraghty), PAN *taRutuml-fJ ‘puffer / porcupine fish’
TON toutu, toutufala ‘k.o. fish’ (Churchward 1959), NTP toutu ‘spiny puffer’, NIU toutu ‘Diodon spp.’, EUV tautu (juvenile), tautufala ‘Diodon spp.’, EFU ta'utu ‘nom d’un poisson velu’ (Rensch 1986), SAM, TOK tautu, TUV tautau, NUK daudu ‘spiny puffer fish’, KAP daudu, LUA kauku, TIK, WFU, WUV tautu

A PPN generic term replaced in Eastern Polynesian languages by *tootara, see next entry. My Tongan informant did not know toutu, and gave sokisoki, a Fijian borrowing, as the name for porcupine fish.

#143 PEP *tootara ‘Diodon spp., porcupine fish’
PUK tōtala, EAS (titeve) taratara ‘Chilomycterus affinis (Günther), porcupine fish’, HAW kōkala, MQS tōta’a, TAH, TUA, CIM tōtara, MAO (kōpū) tootara
A generic term, with many binomials at species level. Again, note the existence of a Pukapukan reflex.

#144 PNP *sue ‘pufferfish spp.’
A descriptive name; cf. *sue ‘gourd, calabash’.

#145 PPN *moamo ‘Ostraciontidae, boxfish’
PCP *moamoa (Geraghty)
TON, NTI mōmō ‘Ostracion and Lactoria spp., boxfish and cowfish’, EUV, SAM, TOK, TUV, PUK moamo ‘Ostracion or Lactoria spp.’, NUK moamo, KAP (dege)moomoo, LUA momoa, REN moamo, TIK, ANU momo(aka), TAU momo(vaka), momo(hatu), WFU moamo, EAS momo(tara), HAW moa, moamo, MQS momoʻoa(ohaka), momo(haka), TAH momoa, MAN moamo
All reflexes defined as varieties of boxfish, trunkfish or cowfish.

SIGANIDAE

#146 PPN *maʔawa *Siganus* sp., rabbitfish
PCP *maʔawa* (Geraghty)
TON *maʔava* *S. fuscescens* (Houttuyn), TOK *maeava* *S. rostratus* (Valenciennes), TUV *maiava* *Siganus* sp., PUK *mālava*, MQS *maʔava* *Siganus argenteus* (Quoy & Gaimard), also *Aphareus furcatus* (Nuku Hiva), TAH, TUA marava, MAN morava, CIM mōrava *S. rostratus* (Bacquie 1977)

For the phonological irregularities, see discussion in Geraghty (this volume).

#147 PPN *oo* tuna baitfish, such as the fry of *Siganus* or *Caesio* spp.
TON ò ‘k.o. fish; small, with poison back fins’ (Churchward 1959; almost certainly *Siganus*), NTP ò ‘rabbitfish’, EUV ò ‘*Siganus* sp.’, SAM lō ‘the name of a fish’ (Pratt 1878), TOK ò *Lepidozygus* sp., lōtala *Siganus* sp. (juvenile), TUV ò ‘small reddish baitfish’ (Gillett 1985, pers.comm., from informant; see also Kennedy (1931), who describes ò as ‘silver and bluish-green’), PUK wō ‘a tiny deep-sea minnow, comes close to the reef in large schools’ (Beaglehole & Beaglehole 1938; my informants described a fish with the same behavioural characteristics as TOK ò), MAO oia *Caesioperca lepidoptera*, butterfly perch

This set is included here for convenience, because a number of reflexes refer to the fry of the genus *Siganus*. See section 4, for a discussion of the problems associated with this name. The New Zealand Maori fish name oia seemed worth including as the species is pink in colour, becoming red when removed from the water, and like the tropical species described above feeds on plankton and swims in schools (Ayling & Cox 1982:208).

APPENDIX 3: FINDERLIST

*alaala(futu) #61 *hafulu #90
*ali #33 *haku #20
*aseu #57 *hapi #116
*ewe, wewe #48 *huli #67
*faaFaalu #9 *ise #19
*faaLoa #46 *kafa #40
*faapuku #42 *kakasi #131
*fai #6 *kaloama #93
*faiKili #8 *kamai #69
*fai manu #7 *kamutu #111
*faamea #74 *kanahe #37
*fiLoa #82 *kapoa #126
*filu #60 *kata #59
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ASPECTS OF AUSTRONESIAN KINSHIP SEMANTICS

VIKTOR KRUPA

1. INTRODUCTORY REMARKS

The subtitle of our symposium raises the question of the goal of investigating the diachrony of languages. Is it explanation of the present state? Reconstruction of the initial state, whatever that means? Understanding the mechanism of change? Using language data as a lever to uncover the way of life and culture of past generations? Lexical metaphor is of relevance to all these issues but too little attention has been paid to it in the field of Austronesian historical studies (unlike, for example, Indo-European comparative studies). Therefore I appreciate Andrew Pawley’s remark about the wealth of derived forms with idiomatic meanings in all major Polynesian languages in Pawley (1991:14). But metaphor is only one of several instruments of semantic change.

This paper deals with some aspects of the role of metaphor in the domain of kinship terminology in Malay (Indonesian) in comparison with several Austronesian languages, especially Javanese, Gayo and Maaori and with excursions into the phase of the reconstructed protolanguage. In Malay, and to a lesser degree in Gayo, Javanese and Maaori, there is sufficient evidence for more or less prolific outward metaphorisation where the domain of kinship terminology serves as a source of lexical metaphors; however, the historical-comparative method is not oversensitive to outward metaphorisation and thus in the postulated reconstructions we are confronted only with metaphorisation in the opposite direction – with inward metaphorisation, that is, from other conceptual domains into that of kinship.

The presence of metaphor (and of metonymy, synecdoche, etc.) within the domain of kinship terms comes as no surprise since these devices are believed to be central to language (cf. Fauconnier 1985:1), and to human thought and orientation in the surrounding world in general. Metaphor is a way (or rather one of several ways) of structuring conceptual domains or, in Fauconnier’s terminology, of mental spaces – as well as an instrument of lexical motivation. The latter property renders inferences from language to phenomena observed in reality possible. The link between semantics and experience, however, is too complex to be deterministic. Therefore, the appearance of a new kinship term may, but need not, signal a transformation in the kin organisation – simply because new lexemes appear in the vocabulary not only for cognitive reasons (to fill in existing gaps) but also under affective pressures (such as politeness or taboo). This, among other things, contributes to the fact that any reconstruction is in principle open-ended and incomplete and that the inferences from language to reality are only hypothetical.

Since the kinship terminology undergoes incessant if slow change, there is always a certain ratio of semantically transparent, motivated terms such as Proto Austronesian (PAN)
*makempu* ‘grandchild’ (Chowning 1980:232) versus primary, opaque ones, such as PAN *anak* ‘child’. This holds not only for Austronesian but also for other language families. For example, the set of Indo-European kinship terms (Gamkrelidze & Ivanov 1984:763-769) comprises both primary, opaque terms and semantically transparent terms – either compounds, for example, *sdesor* ‘sister’ (*sose- ‘suus’ + *sor- ‘woman’) or derivations, for example, *sjo- ‘son’ (cf. *seuH- ‘to give birth’), *plhlot!hl ‘husband’ (the original meaning being ‘chief, master’). There is evidence that some original names of address turned into names of reference, for example, *plhJjS ‘father’, *maHfl‘mother’. Reciprocity is illustrated with *HauHo-, documented both as ‘grandfather’ and as ‘grandchild’.

A terminology is usually defined as a set of special lexical units denoting concepts whose semantics lacks modality and expressivity. Terms are notable for their maximum contextual autonomy, precision and absence of such semantic features as ambiguity, polysemy, synonymy and homonymy. Their conceptual content is expected to be defined or at least fixed (cf. Filipec & Čermák 1985:33-34). One might ask if the lexical units discussed here are terms in this sense. I am inclined to say that the answer ought to be positive. The terminological nature of kinship vocabulary is supported by its being a closely-knit set of interrelated and clearly delimited units. Truly enough, the meaning of words denoting kin relations has not been defined by any non-anonymous authority but their conceptual content is spontaneously fixed so that their meaning is less fuzzy than that of other types of lexemes. This implies a markedly lower degree of polysemy (including rarity of the occurrence of reciprocal terms) coupled with a high measure of contextual independence.

2. SEMANTIC CHANGES IN THE DOMAIN OF KINSHIP TERMS

Robert Blust’s (1980b) paper on early Malayo-Polynesian kinship terms demonstrates that overlapping between the conceptual domains of nuclear family and wider social organisation (or even beyond it) is a very common phenomenon and the character of these extensions may be metaphorical, metonymical or synecdochical (cf. *Sua(n)ji ‘younger sibling’ > ‘relative’, *Rumaq ‘house’ > ‘lineage’, *ma(n)tuqaS ‘parent-in-law’ < *tuqaS ‘ripe, mature, developed, old’, and Dempwolff’s *(t)umpu ‘ancestor, Sir’ analysed by Blust (p.214) as *t-ampu, *t-empu, *(t-impu, *t-umpu ancestor, lord, master, owner). The same source term may be extended during the course of history in different directions. Thus, *tuqaS gave ma/tuqa ‘parent’ in Proto Polynesian and ma/tua ‘elder children’ in Hova. Rotuman may also be quoted as an illustration that terms from the domain of age and status are routinely introduced into the domain of kinship, for example o’i ‘parent, uncle, aunt’ (plural o’o’i) for which the meaning “elder, senior, esp. older person in authority over one” is listed (Churchward 1940:276). After all, the German term Eltern ‘parents’ has the same etymology. It comes as no surprise that shifts of this kind repeatedly occur in linguistic history, compare Arosi araRA ‘great, chief’ (raRA ‘big, great’) < Proto Oceanic *qa-la(m)pas ‘chief, person of noble birth’ and Arosi aRII ‘the eldest son of a chief’ (RII ‘small’) < Proto Oceanic *qa-diki ‘first-born son of a chief’ (Pawley 1982:39-42; Fox 1970:26,30).

Kinship terms, despite being part of the core vocabulary, are not immune to semantic shifts, which may have several motivations. As mentioned above, this semantic field is contiguous to other semantic fields, especially to the domains of social status and of age; it is from such semantic field(s) that new kinship terms are borrowed. Secondly, the kinship system within the society may undergo restructuring so that available terms now and then
have to be readjusted. Another reason for change, often through circumlocution (cf. Chowning 1980:232), may be seen in ritual avoidance; special terms of address are sometimes introduced into the microsystem. The latter are especially frequent within the immediate range of a baby's interest, comprising chiefly mother and father (cf. Indonesian bapak, Indo-European *plhl|H-(*j|ler-), *maH-(*j|ler-), Austronesian *bah|H. These terms belong to a pool of spontaneous vocalisations (usually in reduplicated form) known throughout the world, such as papa, tata, mama, baba, dada.

At this point I should mention problems that sometimes arise when trying to determine the direction of semantic transfer. If a particular word, such as Austronesian *bah|H or Slavic baba, is one of the set of the abovementioned spontaneous vocalisations, then its original meaning probably belongs to the kinship domain ('grandmother') and the meaning 'woman' or 'old woman' is semantically secondary. In other instances we must rely on different rules of thumb, such as the shift from familiar to unknown or from concrete to abstract. And yet sometimes no rule would be of any help.

3. COGNITIVE ASPECTS OF KINSHIP TERMINOLOGY ANALYSIS

An analyst may view the kinship terms as clusters or congestions of features in a semantic field surrounded by other semantic fields. Let us reconsider the cognitive basis of these links.

Although kinship is one of the basic facts of human existence, its projection within vocabulary is not to be viewed as a set of ultimate semantic primes. Kinship terminology (in relation to other semantic fields) is both source and target of semantic operations such as metaphor, metonymy, synecdoche, extension, reduction. Persons linked by kinship bonds do at the same time represent a social unit and it is only natural that the social status definitions correlate with age, sex and position within the kin unit. Parents are both older and more respected than children and so are elder siblings vis-a-vis younger siblings or males vis-a-vis females. In other words, a kin unit consists of a group of persons that are, in addition to being genetically related, either older or younger, bigger or smaller, male or female, mature or immature, more or less esteemed, etc. The particular semantic parameters tend to correlate, which constitutes a basis for change and continuity within the domain of kinship terminology.

Our cognitive attack upon the reality outside and inside ourselves has an egocentric basis, that is, it starts from our human self and expands, radiating around, via perception and the subsequent interpretation of perceived data. These data have sense only upon the basis of a pre-existent heuristic hypothesis and although it remains unclear where the first cognitive hypothesis comes from or how it comes about, it may well be assumed that the process of cognition does not start from the abstract (or geometrical) centre of our psychophysical being but rather at the interface between ourselves and the rest of existence. This may help us understand what Wittgenstein (1969:175) has to say on the subject: “Das philosophische ich ist nicht der Mensch, nicht der menschliche K6rper oder die menschliche Seele mit den psychologischen Eigenschaften, sondern das metaphysische Subjekt, die Grenze (nicht ein Teil) der Welt”. The advance of cognition, however, is not only an outward march but also a vigorous attempt to penetrate the interior of human existence, and it is here that the quotation from Wittgenstein ought to be completed: “Der menschliche K6rper aber, mein K6rper
4. KINSHIP TERMS AS A SOURCE OF LEXICAL METAPHORS

As mentioned before, outward metaphorisation is not well documented for PAN kinship terminology. However, this by no means implies their absence in the protolanguage. As proved by Indo-European, one of the promising lines of search for it may be seen in religion and mythology. Thus for Indo-European we have the reconstruction *t'ieu(s)-pt[hl]H[hl]er ‘God Father’ (Garnkrelidze & Ivanov 1984:791) as the chief deity. No female parallel has been reconstructed for Proto Indo-European but the Ancient Greek expression Dēmētēr < *Gēmētēr (‘Mother Earth’) corroborates the ubiquity of the kinship metaphor. This model is at least latently present in Polynesian cosmogony; compare the couple Ranginui (‘Heaven’, the original male god) and his wife Papatuanuku (‘Earth’).

Henceforth, our attention will be focused on the outward metaphorisation of the kinship terms, mainly in Malay, with references to Gayo, Javanese and Maori. The conceptual domain of kinship is very active, representing the sole most important source of Malay lexical metaphors. It is part of the human cognitive interface that also includes elementary anatomy and basic vital functions. These three domains are interrelated aspects of human existence as a whole. Anatomical terminology reflects an elementary internal structuring of human physical being in terms of parts and whole relations; the vital functions are its inputs and outputs, relating it to its immediate environment, while kinship terms reflect causal dependence upon the pressures of (some of) the vital functions as well as upon the social nature of human beings, representing the mutual relations of individuals within a structured social milieu. Terms from all three domains embody a pool of cognitive metaphors as devices that are so fundamental as to be applicable to other phenomena in an effort to unveil their essence and structure. Application of these domains to other conceptual areas is based on the assumption of an essential homogeneity of the reality, on parallels, analogies and similarities.

Competing metaphors (or, in this instance, metaphorical models) are a common enough phenomenon in Malay; two different source domains are sometimes applied to one and the same target domain in order to suggest different connotations. Thus anatomical metaphors seem to accentuate that one has to do with a higher degree of integrity than is the case with kinship metaphors, compare Malay (Indonesian) mata panah ‘arrowhead’ (roughly ‘eye of an arrow’) versus anak busur ‘arrow’ (analysable as ‘child of a bow’), or kepala susu ‘cream’ (i.e. ‘head of milk’) versus ibu pasir ‘gravel’ (literally ‘mother of sand’).

In these examples, the arrowhead is an integral part of an arrow while the arrow and the bow no doubt represent a much looser unity; likewise, cream is hard to separate from the rest of milk while gravel and sand are very easy to distinguish and sort out.

By no means all kinship terms are productive as metaphorical vehicles in the languages discussed here. While Malay bapa ‘father’ may be used with the meaning of ‘founder’, ‘creator’, and saudara ‘brother’ with the pronominal function of ‘you’ (the semantic basis is too obvious in both instances), only two terms are widely employed for the metaphorical extension of Malay vocabulary, namely anak ‘child’ and ibu ‘mother’ (as well as its synonyms or near-synonyms induk and biang). The meaning of anak ‘child’ is defined as (1) a direct descendant of the parents, and (2) an immature person cared for by grown-up people, while ‘mother’ is defined as (1) a female parent of human offspring, and (2) a
woman who cares for immature children. The virtual absence of 'father' in the inventory of lexical metaphors needs some explanation. Father is perceived as the person responsible for the whole family and that is why the idea of protectorship, primeval creativity and respect looms large in the semantic characteristics of this word. The relationship between father and mother is asymmetrical from the point of view of the child, and the latter forms a natural, compact and immediate unit with its mother.

The lexicographic characteristics of the meaning of child and mother are laconic: a prototypical child may be defined as an immature person taken care of by both of its biological parents, having siblings, and perhaps living together with both its parents and siblings; and a prototypical mother would likewise be a mature female person taking care of her biological offspring and living together with them and with their father.

Whenever anak ‘child’ or ibu ‘mother’ are used, the communicants obviously have the prototypes of these concepts in their minds although they may occasionally be confronted with referents that do not meet all of the diagnostic criteria. But what happens when anak or ibu are applied to areas other than that of the narrow family circle? We are well aware that bullets are no children of guns, despite the fact that Malays call them anak bedil, just as we know that gravel is no mother of sand, notwithstanding the Malay expression ibu pasir. We may ask the question what is left and what is lost of the prototypical semantic spectrum if a word is used metaphorically. The answer is its salient features – historical investigation of metaphor is useful among other things because metaphors help us detect those semantic features that are salient. But we have to take into account that the notion of saliency may vary in time.

In several dictionaries of Malay and Indonesian some thirty lexical metaphors of anak ‘child’ and somewhat fewer metaphors based on ibu, biang or induk ‘mother’ have been found (Korigodski, Kondrashkin & Zinoviev 1961; Echols & Shadily 1963; Wilkinson 1961) and analysed. They are listed below.

5. A SEMANTIC ANALYSIS OF LEXICAL METAPHORS BASED ON KINSHIP TERMS IN MALAY (INDONESIAN)

The semantic basis of the lexical metaphors based on anak ‘child’ makes a threefold classification possible:

(1) Metaphors in which the feature of origin or cause versus result seems to play the dominant role:
- anak bedil: ‘bullet’ (child of the gun)
- anak busur: ‘arrow’ (child of the bow)
- anak panah: ‘arrow’ (child of the bow)
- anak duit: ‘interest’ (child of money)
- anak tekak: ‘uvula’ (child of the throat)
- anak mana: ‘where from?’ (child of where)

(2) Metaphors in which the feature of subordination and dependence play the major role:
- anak negeri: ‘subject of a country’ (child of the country)
- anak kapal: ‘crew’ (children of the ship)
- anak perahu: ‘crew’ (children of the boat)
- anak méja: ‘drawer’ (child of the table)
- anak jentéra: ‘wheel spoke’ (child of the wheel)
anak loncéng  ‘bell clapper’ (child of the bell)
anak genta  ‘bell clapper’ (child of the bell)
anak mata  ‘pupil’ (child of the eye)
anak sungai  ‘tributary’ (child of the river)
anak tangga  ‘rung, stair’ (child of the staircase)
anak telinga  ‘tympanum’ (child of the ear)
anak timbangan  ‘weights’ (child of the scales)
anak kalimat  ‘subordinate clause’ (child of the sentence)
anak tangan  ‘finger’ (child of the hand)
anak tari  ‘dancer’ (child of dance)
anak obat  ‘patient’ (child of medicine)
anak limpa  ‘gall bladder’ (child of the liver or of the spleen)
anak baju  ‘undershirt’ (child of the blouse)

(3) Metaphors in which the feature of a relatively small size is of importance:
anak rambut  ‘lock of hair’ (child of hair)
anak kunci  ‘key’ (child of the lock)
anak rambut  ‘man’s receding hairline’ (child of hair)
anak bukit  ‘hillock’ (child of the hill)
anak lidah  ‘uvula’ (child of the tongue)
anak saku  ‘small pocket’ (child of the pocket)

As expected, a threefold grouping may be established with the metaphors centring on ‘mother’ (ibu, biang, induk) as their vehicle:

(1) Metaphors in which the feature of origin or cause comes into the foreground:
ibu pasir  ‘gravel’ (mother of sand)
ibu akar  ‘main root, taproot’ (mother of roots)
induk madu  ‘honeycomb’ (mother of honey)
induk cuka  ‘essence of vinegar’ (mother of vinegar)
biang roti  ‘leaven’ (mother of bread)
biang keringat  ‘prickly heat’ (mother of sweat)

(2) Metaphors in which the feature of superiority is dominant:
ibu kota  ‘capital city’ (mother of cities)
ibu negeri  ‘capital city’ (mother of the country)
ibu kunci  ‘lock’ (mother of the key)
ibu sungai  ‘principal, main river’ (mother of rivers)
ibu tangga  ‘bannister’ (mother of the staircase)
ibu tentara  ‘the main body of the army’ (mother of the army)
induk kalimat  ‘main clause’ (mother of the sentence)
induk karangan  ‘editorial’ (mother of the composition)

(3) Metaphors that accentuate the feature of a relatively big size:
ibu jari  ‘thumb’ (mother of the fingers)
induk jari  ‘thumb’ (mother of the fingers)
ibu kaki  ‘big toe’ (mother of the toes)
ibu tangan  ‘thumb’ (mother of the hand)
biang tangan  ‘thumb’ (mother of the hand)
induk utang  ‘principal debt’ (mother of debts)
It is obviously not chance that just two kin terms are usually metaphorised, terms that complement each other in a logical opposition. They may be represented as a single variable that acquires two opposite values, that is, 'child' (anak) and 'mother' (ibu, induk, biang). It comprises three focal features: (1) cause and effect, or resultativeness; (2) superiority and subordination, or dependence; and (3) bigger and smaller, or relative size.

These features are not independent, but closely linked together by metonymical relations since cause is perceived to be superordinate just as any superordinate thing tends to be big; on the other hand, result is no doubt subordinate to cause and, finally, what is subordinate tends to be small. This is part of the prototypical characteristics of the semantic fields of mother and child which are easier to perceive as a whole than to analyse into clearly delimited components.

Their syntax also contributes to their semantics. These lexical metaphors are constructed as schematic structures: (1) 'child + lexeme', and (2) 'mother + lexeme'.

In scheme (1), the pressure of its structural linkage forces the lexeme into the functional position of 'mother', for example, in the metaphor anak duit 'interest', duit 'money' is projected into the functional position of the mother of interest, which means that both terms contribute to the figurativeness of the whole.

In scheme (2), an analogous pressure forces the lexeme to be perceived as referring to a child, for example, in ibu pasir 'gravel', the second term pasir 'sand' is projected as 'child' of which 'gravel' is 'mother'.

6. KINSHIP METAPHORS IN OTHER AUSTRONESIAN LANGUAGES

In Maaori vocabulary, only a handful of metaphors of this kind are listed, with tama 'son, child' prevailing and mokopuna 'grandchild', karawa 'dam, mother' and matua 'parent, father' occurring only exceptionally:

- tama (tuu ki roto) 'emotion, desire, craving, strong feeling' (child [standing] inside)
- tama ngarengare 'penis' (tyrannous child)
- tama a hara 'object of revenge' (child of sin/offence)
- taitamata tane 'the sea on the west coast' (the virile sea)
- taitamawahi ne 'the sea on the east coast' (the feminine sea)
- raa mokopuna 'a fine day in winter' (grandchild day)
- karawa 'bed in the garden' (dam, mother)
- matua 'main, chief, important' (parent, father)
- matua 'hull or body of a canoe' (parent, father)

Typically, these metaphors are, unlike those listed for Malay, not neutral, basic lexemes but only stylistic devices. Sporadical lexical metaphors based on kinship are attested for other Polynesian languages, for example, Hawaiian makua 'benefactor, provider; main stalk of a plant' (basic meaning 'parent'), keiki 'shoot of a plant, keiki hānau o ka 'āina 'native of the country', literally 'child born from the country' (Pukui & Elbert 1957:213,131-132); Samoan tama a le 'ele'ele 'a man born and bred in a particular village', literally 'child of the earth', tama a le mata 'eyeball', that is, 'child of the eye' (Milner 1966:239); Tikopia tama forau 'visitor, stranger' and also 'breadfruit crop', literally 'voyaging child' (Firth 1985:478); Nukuoro dama laIo 'person who has visited other far-away lands, that is, 'child
of below’, *dama ulungi* ‘a man good at catching tuna with a fishing pole’, literally ‘child of steering a canoe’ (Carroll & Soulik 1973:45).

The situation in Gayo is more reminiscent of Malay than that of Maaori. The term *anak* ‘child’ is the vehicle of quite a few lexical metaphors:

- *anak n awal* ‘young shoots of a pisang tree’ (child of pisang)
- *anak n bêdil* ‘bullet’ (child of the gun)
- *anak n bêlêk* ‘vagina’ (child of a split)
- *anak boeah* ‘subject, serf’
- *anak n kalah* ‘uvula’ (child of the uvula)
- *anak kampoeng* ‘inhabitant of a village’ (child of a village)
- *anak ni kitê* ‘step of stairs’ (child of the stairs)
- *anak ni kôbôh* ‘light foam’ (child of the foam)
- *anak ni koentji* ‘key’ (child of a lock)
- *anak ni mata* ‘pupil of the eye’ (child of the eye)
- *anak nangket* ‘arrow’ (child of sumpitan)
- *anak ni kês* ‘match’ (child of a matchbox)
- *anak toeng* ‘a package of tobacco’ (child of a box)
- *anak nêgri* ‘inhabitant of a country’ (child of the country)

Exactly as in Malay, *ino* ‘mother’, occurs much less frequently in lexical metaphors of Gayo than *anak* ‘child’. Several examples are listed below:

- *ino kiding* ‘big toe’ (mother of the foot)
- *ino poemoe* ‘thumb’ (mother of the hand)
- *ino n koetoe* ‘a big louse’ (mother of lice)
- *ino ni koening* ‘Curcuma seeds reserved for sowing’ (mother of Curcuma)
- *ino ni oewak* ‘the most important component of a medicine’ (mother of medicine)

Judging by the available dictionaries, kinship metaphors are fairly infrequent in Javanese, a language quite closely related to Malay; most of them are listed below:

- *anak* ‘shoot of a plant’ (*anak* ‘child’)
- *anakan* ‘interest on money’ (*anak* ‘child’)
- *anak koempeni* ‘soldier’ (child of company)
- *nganaki* ‘to pay interest’ (*anak* ‘child’)
- *goenoeng anakan* ‘a lower hill next to a higher mountain, continuation of a mountain’ (child of a mountain)
- *sagara anakan* ‘bay, gulf’

These are primary, stylistically unmarked terms and one cannot rule out the possibility that some of them are borrowings from Malay.

A tentative comparison of the Malay situation with other Austronesian languages seems to indicate that kinship terms are metaphorised on a much larger scale in Malay than in Gayo, Javanese or Maaori. The frequent occurrence of lexical metaphors in Malay may be due to Malay’s functioning as a major language of interethnic communication, in which situation a maximum semantic transparency is highly valued (cf. Menn 1989:340).
7. CONCLUSIONS

A kinship system comprises a group of persons that are, in addition to being genetically related, either older or younger, bigger or smaller, male or female, mature or immature, more or less esteemed, thus creating a basis for overlapping of several semantic domains. The particular semantic parameters tend to correlate, which constitutes the basis for change and continuity within the domain of kinship terminology. Kinship terms are not immune to semantic shifts because, (1) the kinship system may undergo restructuring so that the appropriate terms now and then have to be readjusted, and (2) the semantic field of kinship terms is contiguous to other semantic fields or overlaps with them, especially with the domain of social status; it is precisely from such semantic field(s) that new kinship terms are borrowed. The conceptual domain of age also ought to be taken into account (terms for young and old), and another reason for change, often through circumlocution, may be seen in ritual avoidance. Special terms of address are sometimes introduced into the microsystem and they may be expected to be frequent within the immediate range of a baby’s interest, comprising chiefly mother and father.

Kinship terminology is both source and target of semantic operations such as metaphor, metonymy, synecdoche, extension, reduction, etc. The operation of such devices within the domain of kinship terms comes as no surprise since these devices are central to language and to human thought.

Kinship terms represent the sole most important source of Malay lexical metaphors in the domains of elementary anatomy and basic vital functions. By no means all kinship terms are productive as metaphorical vehicles. In Malay only two terms are widely employed for the metaphorical extension, namely anak ‘child’ and ibu ‘mother’ (as well as its synonyms or near-synonyms induk and biang). Whenever anak ‘child’ or ibu ‘mother’ are used, the communicants have the prototypes of these concepts in their minds although they may occasionally be confronted with referents that do not meet all of the prototypical criteria. But what happens when anak or ibu are applied to areas other than that of the narrow family circle? The answer is, their salient features will be preserved but we have to take into account that the notion of saliency may vary in time.

The semantic basis of the lexical metaphors based on anak ‘child’ makes a threefold classification possible: (1) metaphors in which the feature of origin or cause versus result seems to play the dominant role; (2) metaphors in which the feature of subordination and dependence play the major role; and (3) metaphors in which the feature of a relatively small size is of importance.

A threefold grouping may likewise be established with the metaphors centring on ‘mother’ (ibu, biang, induk) as their vehicle: (1) metaphors in which the feature of origin or cause comes into the foreground; (2) metaphors in which the feature of superiority is dominant; and (3) metaphors that accentuate the feature of a relatively big size.

A comparison of Malay with other Austronesian languages seems to indicate that kinship terms are metaphorised on a much larger scale in Malay than in Gayo, Javanese or Maaori. The more frequent occurrence of lexical metaphors in Malay is at least partly due to Malay’s sustained use as a major language of interethnic communication. The latter situation probably favours the vocabulary expansion by means of composition based on cardinal metaphors (cf. certain phases of the development of pidgins) because such compounds are notable for their semantic transparency.
1. INTRODUCTION

The study of flora and fauna has provided fruitful results in the field of Austronesian linguistics in the past 100 years or so. It has shed light not only on the cultural history of the Austronesian-speaking peoples, but also on the location of their original homeland or early settlements.

The first scholar to apply this method to Austronesian studies, to my knowledge, was Hendrik Kern (1889). Based on a comparative study of 113 Austronesian languages, he reconstructed some 30 Proto Austronesian cognate sets, which included mostly plant and animal names, including: sugarcane, coconut, bamboo (four species), rattan, cucumber, stinging nettle, a plant used for poisoning fish, taro, banana, pandanus, yam, rice (three types), shark, squid, lobster, rayfish, turtle, crocodile, eel, mosquito, fly, pig, dog, rat, head louse, nit, spider, heron, iron, boat. Based on the types of these tropical plants he inferred that the Proto Austronesian people probably resided in the tropics.

Kano (1941a) believed that “plant geography often occupies an important position in the study of ethnology...and that studies of cultivated plants furnish the answers to certain questions of racial migration, cultural contact, etc.”. He suggested three possible routes for the cultural migration of Formosan tribes from the Philippines, based on the study of six cultivated plant names, breadfruit (*Artocarpus communis*), Fiji longan (*Pometia pinnata*), *Semecarpus vernicifera*, *Musa textilis*, *Acacia confusa* and *Dioscorea fasciculata*, as well as the original localities of these cultivated plants outside Formosa and their geographical restriction to the eastern coast of Formosa (inhabited by the Amis and Kavalan tribes) and the narrow area in southern Formosa (occupied by Paiwan). This phenomenon will be discussed further in section 4.

In this paper we discuss not only some of the above-mentioned plant names but also many others found in Formosan languages. Some of the plant names are duly reconstructed as Proto Austronesian (PAN) or Proto Hesperonesian (PHN) (= Proto Western Austronesian), while the others are reconstructable but geographically restricted to the area of Taiwan. Since Tsuchida (1977) discussed 54 mostly cultivated plant names in Formosan languages, we shall avoid repeating the same plant names unless we have new data.

Some plants are indigenous and others are non-indigenous to Taiwan. Indigenous plants include yam, *Alocasia* (an inedible type of taro), tomato, loquat, pine tree, maple tree, soapberry and persimmon. Non-indigenous plants include rice, sorghum, maize, sugarcane, banana, pomelo, plum, peach, mango, sweet potato, taro, pumpkin, cucumber, gourd,
melon, sesame, eggplant, garlic, chilli pepper, ginger, beans and peas. Some plants are cultivated and others non-cultivated. Cultivated plants include rice, millet, maize, sugarcane and sweet potato. Non-cultivated plants include camphor laurel and the zelkova tree.

In this paper we examine (1) plant names that relate Formosan languages to Austronesian languages outside Formosa, that is, with PAN or PHN cognates (e.g. PAN *quway ‘rattan’, PAN *pag’ey ‘rice’) and (2) plant names that relate only to Formosan languages, that is, Proto Formosan (PFN) or lower-level cognates that are exclusively shared by some Formosan languages (e.g. PFN *DaRa ‘maple tree’, PFN *bagas ‘Melia azedarach’).

Some PAN or PHN cognates are quite widespread among the Formosan languages (e.g. PAN *quway ‘rattan’, PAN *kaSuy ‘tree’). Some cognates are retained only in a few languages (e.g. PAN *tuba ‘fish poison’, PHN *taNiuD ‘mulberry’, PHN *pahpah ‘flower’). PAN *[d'9]awa is retained only in Puyuma dawa ‘millet’. PAN *n'iur ‘coconut’ is completely lost in all Formosan languages.

I have collected some 300 plant names from Formosan informants by showing them coloured photographs of the plants. These include only the 14 languages that are still extant. Unless stated otherwise, each of these Formosan languages is generally represented by a major or important dialect: Atayal by Mayrinax, Sediq by Tongan, Tsou by Duhtu, Rukai by Budai, Bunun by Takituduh, Paiwan by Tjubar, Puyuma by Pinan, SaiSiyat by Ta’ai, and Amis by Sakizaya. The other languages, Kanakanavu, Saaroa, Thao and Kavalan, have only one dialect each. The extinct Formosan languages, Taokas, Babuza, Favorlang, Papora, Hoanya, Siraya, Basay and Ketangalan, are based on various written records (see Tsuchida 1982, 1985).

The natives used to live on edible plants such as millet, rice, taros, sweet potatoes and *Lactuca indica*. They still use some herbs, such as *Ebulus formosana*, to cure disease or heal wounds. Certain plants are sacred in the sense that they are used to perform ritual ceremonies. Dozens of plant names are reconstructable for early stages of Austronesian.

As Tsuchida (1977) points out, some non-cultivated indigenous plants, which are important to the daily life of the Formosan natives, are prevalent on the continent of Asia, yet their corresponding names are not found in insular Indonesia. These include PFN *layaD ‘Ebulus formosana’, PFN *samaq ‘Lactuca indica’. Since Tsuchida (1977) did not have time to include these plant names in his study, we will do so in this paper.

2. CONVENTIONS AND ABBREVIATIONS

The reconstructions and their supporting data are listed in Appendix 1 of this paper.

In this study, the Proto Austronesian symbols generally follow Otto Dempwolff (1934-38), but with the subsequently revised phonemic distinctions between *t₁ and *t₂, *n₁ and *n₂ which were originally proposed by Ogawa and Asai (1935:6-7), as well as the additions of *q and *s (*S in Dyen 1971a and *S₁ in Dahl 1981), and */( *S₂ in Dahl 1981). The symbols *t₁ and *n₁ are written as plain *t and *n respectively, while *C stands for *t₂ and *N for *n₂. Dempwolff’s *j and *v are written as *y and *w respectively, as originally marked by an asterisk before the Latin botanical name in our comparative wordlist, as indicated in Tsuchida (1977). In Sasaki (1928) and Hsieh and Yang (1969) non-indigenous plants are indicated by italicised letters.
suggested by Dyen. The small \( *h \) is adopted for \( *H \), originally reconstructed by Dyen (Tsuchida’s \( *H_1 \)), and \( *H \) for Tsuchida’s (1976) and Dahl’s (1981) \( *H_2 \).

The following conventions generally follow Tsuchida (1977):

1. The symbols <A, <D and <M in parentheses after a cited form indicate the sporadic changes, assimilation, dissimilation and metathesis, respectively. Immediately after <A, the change segment is followed by the expected segment and separated by a slash, for example, PHN \( *t’alep \) ‘pine tree’ > Bun caap (<A a/u) ‘torch’.

2. The symbol \( l \) stands for a voiceless lateral and \( c \) for a dental affricate [ts].

3. An asterisk before a Latin botanical name indicates that the plant is non-indigenous to Taiwan, as indicated in Tsuchida (1977).

4. A numeral preceding a plant name in each Formosan language indicates that the forms with the same numeral are cognates and reflexes of a reconstructed protoform given above in the same column. In general, non-cognate forms are not cited where there is only one cognate set reconstructable for a plant name.

5. An ambiguous reconstruction is indicated by square brackets with two possible protophonemes, for example, PAN \( *sem[ae]y \) ‘cooked rice’, which indicates that the second vowel is indeterminable as to whether it was \( *a \) or \( *e \).

6. Parentheses around a protophone or sequence of protophonemes indicate that what is enclosed constitutes the only difference between two protoforms. Thus \( *Du(k)Duk \) means that the two protoforms, \( *DukDuk \) and \( *DuDuk \), are reconstructed. Loanwords or suspicious cognates (with one or two aberrant segments) are also put in parentheses.

ABBREVIATIONS OF LANGUAGE AND DIALECT NAMES

<table>
<thead>
<tr>
<th>Code</th>
<th>Language/Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMI(F)</td>
<td>Amis (data from Fey 1986)</td>
</tr>
<tr>
<td>AMI(Fa)</td>
<td>Amis, Fata'an dialect</td>
</tr>
<tr>
<td>AMI(Fr)</td>
<td>Amis, Farangaw dialect</td>
</tr>
<tr>
<td>AMI(Sa)</td>
<td>Amis, Sakizaya dialect</td>
</tr>
<tr>
<td>AMI(Ms)</td>
<td>Atayal, Maspazi? dialect</td>
</tr>
<tr>
<td>AMI(Mt)</td>
<td>Atayal, Matabalay dialect</td>
</tr>
<tr>
<td>AMI(Mx)</td>
<td>Atayal, Mayrinax dialect</td>
</tr>
<tr>
<td>AMI(Pl)</td>
<td>Atayal, Pilingawan dialect</td>
</tr>
<tr>
<td>AMI(Sk)</td>
<td>Atayal, Skikun dialect</td>
</tr>
<tr>
<td>B AB</td>
<td>Babuza (Formosan, extinct)</td>
</tr>
<tr>
<td>BAS</td>
<td>Basay (Formosan, extinct)</td>
</tr>
<tr>
<td>BTK</td>
<td>Bontok (Philippines)</td>
</tr>
<tr>
<td>BUN(Is)</td>
<td>Bunun, Ishbukun dialect</td>
</tr>
<tr>
<td>BUN(Tb)</td>
<td>Bunun, Takbanauaz dialect</td>
</tr>
<tr>
<td>BUN(Td)</td>
<td>Bunun, Takituduh dialect</td>
</tr>
<tr>
<td>BUN(Th)</td>
<td>Bunun, Takibakha dialect</td>
</tr>
<tr>
<td>CEB</td>
<td>Cebuano (Philippines)</td>
</tr>
<tr>
<td>FAV</td>
<td>Favorlang (Formosan, extinct)</td>
</tr>
<tr>
<td>FIJ</td>
<td>Fijian</td>
</tr>
<tr>
<td>GAD</td>
<td>Gaddang (data from Reid 1971)</td>
</tr>
<tr>
<td>HNO</td>
<td>Hanunoo (Philippines)</td>
</tr>
<tr>
<td>HOA</td>
<td>Hoanya (Formosan, extinct)</td>
</tr>
<tr>
<td>HOV</td>
<td>Hova (= Merina), Malagasy</td>
</tr>
<tr>
<td>ILK</td>
<td>Ilokano (Philippines)</td>
</tr>
<tr>
<td>IN</td>
<td>Indonesian</td>
</tr>
<tr>
<td>ITB</td>
<td>Itbayaten (data from Tsuchida et al. 1987)</td>
</tr>
<tr>
<td>IVA</td>
<td>Ivatan, Isamorong dialect (data from Tsuchida et al. 1987)</td>
</tr>
<tr>
<td>JAV</td>
<td>Javanese</td>
</tr>
<tr>
<td>KAN</td>
<td>Kanakanavu</td>
</tr>
<tr>
<td>KAV</td>
<td>Kavalan</td>
</tr>
<tr>
<td>KET</td>
<td>Ketangalan (Formosan, extinct)</td>
</tr>
<tr>
<td>MAL</td>
<td>Malay</td>
</tr>
<tr>
<td>NMF</td>
<td>Numfor and Biak islands,</td>
</tr>
<tr>
<td>OJV</td>
<td>Old Javanese</td>
</tr>
<tr>
<td>PAI(Bu)</td>
<td>Paiwan, Butanglu dialect</td>
</tr>
<tr>
<td>PAI(F)</td>
<td>Paiwan (data from Ferrell 1982)</td>
</tr>
<tr>
<td>PAI(H)</td>
<td>Paiwan (data from Ho 1978)</td>
</tr>
</tbody>
</table>
PAI(ST) Paiwan, Stimul dialect  PUY(Pn) Puyuma, Pinan dialect
PAI(Tb) Paiwan, Tjubar dialect  RUK(Bu) Rukai, Budai dialect
PAN Proto Austronesian  RUK(Mg) Rukai, Maga dialect
PAP Papora (Formosan, extinct)  RUK(Mn) Rukai, Mantauran dialect
PAT Proto Atayalic (see Li 1981)  RUK(Ta) Rukai, Tanan dialect
PAZ Pazeh  RUK(To) Rukai, Tona dialect
PFN Proto Formosan  SAA Sa'a
PHN Proto Hesperonesian, Proto  SAI(Ta) Saisiyat, Ta'ai dialect
                      Western Austronesian  SAI(Th) Saisiyat, Tungho dialect
PKA Proto Kavalan-Amis  SAL Samar-Leyte
PFN Proto Northern Formosan (see  SAM Samoan
                 Li 1985)  SAN Sangir, Great Sangir Island,
                       Philippines
PNG Pangasinan  SAR Saaroa
PPP Proto Paiwan Puyuma  SED(Td) Sediq, Toda dialect
PR Proto Rukai (see Li 1977)  SED(Tn) Sediq, Tongan dialect
PRT Proto Rukai-Tsouic (see  SED(Tr) Sediq, Toroko dialect
                      Tsuchida 1976)
PSF Proto Southern Formosan  SIR Siraya (Formosan, extinct)
PSP Proto Saisiyat-Pazeh  TAG Tagalog
PST Proto Southern Tsouic (see  TAO Taokas (Formosan, extinct)
                      Tsuchida 1976)  TBA Toba
PT Proto Tsouic  THA Thao
PUY(Kl) Puyuma, Katipul dialect  TON Tongan
PUY(Lp) Puyuma, Lower Pinlang  TSO Tsou, Duhtu dialect
dialect  YAM Yami, Imurud dialect

3. DISCUSSION

3.1 EXTRA-FORMOSAN AND INTRA-FORMOSAN COGNATES

The fact that PAN or PHN cognates for some plant names are not found in any of the Formosan languages seems to indicate that these plants might have been introduced to Taiwan after the Proto Austronesian-speaking peoples broke up into separate groups and PAN split into separate subgroups. These plant names include coconut, banana (#31), sweet potato (#37), and perhaps also taro (#35). Our evidence for these plant names indicates that Formosan cognates are not related to the ones in the extra-Formosan languages.2

The following plant names have reflexes on Formosan and extra-Formosan languages: PAN *puguDaN 'pandanus, pineapple', PHN *t'aleN 'pine tree', PAN *qauR 'type of bamboo'. PAN *buluq 'type of bamboo', PAN *kawayan 'type of bamboo', PHN *taNiuD 'mulberry', PAN *tubad 'fish poison', PAN *quway 'rattan', PAN *tebul 'sugarcane', PAN *pag'ey 'rice plant', PHN *beRat 'husked rice', PAN *sem[a]y 'cooked rice', PHN *baNaR 'Smilax', PHN *qu[ui]q 'type of mushroom', PHN *amiCi 'Solanum nigrum', PAN *biraq 'Alocasia', PHN *quNuNag 'plant with small sticky fruits', PHN *baNhiR 'cypress'. Most of the other plant names included in this study are items exclusively shared by Formosan languages, such as PFN *beNbeN 'banana', PFN *CaLiH 'taro', PFN *buNa

2 If one accepts Blust's (1977a) hypothesis, which treats three Formosan subgroups (Atayalic, Tsouic and Paiwanic) as constituting the highest order PAN subgroups, then any plant names that appear in two Formosan subgroups can be reconstructed as PAN cognates.
3.2 PLANT NAMES AND CULTURE HISTORY

As mentioned in section 1, Kano (1941a) expected to uncover the migration history of the Formosan natives by studying the original source of some of their cultivated plants. Among the six cultivated plants discussed in his paper, he found that the Yami plant names for both ‘breadfruit’ (see #77, Appendix 1) and ‘Fiji longan’ (#78) closely resembled some of the plant names in the Philippine languages, especially the Batanic languages. The plants were found only in or near the coasts of Botel Tobago where the Yami had lived. He further found that the Amis people in the northern part of the east coast of Taiwan also cultivated these two plants in their villages. He then inferred that the Yami and Amis peoples might have migrated from the Philippines to Taiwan with these plants during prehistoric times.

In support of half of Kano’s hypothesis, there is abundant linguistic evidence for the close genetic relationship between Yami and the languages of the Batan Islands in the northern Philippines; see, for instance, Tsuchida et al. (1987). The oral traditions of the Yami also confirm that their ancestors originally came from the Philippines only a few hundred years ago.

However, the Amis on Taiwan seem to have a different relationship with the Philippines. Their terms for these plant names show no resemblance to the Philippine languages at all. Kano was probably correct in inferring that these plants were introduced to the east coast of Taiwan by the Amis. But it might be more appropriate to say that the introduction was made in the Amis contact with the Philippine people, rather than during the early migration of the Amis, wherever they originated from, to the east coast of Taiwan.

Amis, Puyuma and Kavalan in the east and north-east coast of Taiwan seem to have had a close relationship with some northern Philippine languages such as the Batanic, perhaps due to borrowing. For instance, the word for ‘cucumber’ (#66) is PUY(Lp) vilawur, KAV venaur (-e- irregular), AMI(Sa) bióaul, YAM viraur (-r- irregular). Cucumber is non-indigenous to Taiwan. The plant and its terms were probably introduced to these Formosan tribes in the east via Yami on Botel Tobago.

According to Kano, the fibre of the plant, Musa textilis, was called ‘Manila hemp’ or abaka. The Philippine people have used the fibre to make their clothes since ancient times. The Yami term for this plant was also avaka, and was used to make string or ropes, nets, clothes, sails, etc. The Kavalan people in the north-eastern part of Taiwan, also made their clothes from abaka until recently. Kano believed that this was due to Philippine cultural influence in the area of “abaka culture”.

It seems clear that cultural contact and trade between some of the Formosan natives and the Philippine people were much more frequent and common in the past than they are today. For instance, the Kavalan word bilang ‘to count’ is obviously a loanword from one of the
Philippine languages. It is not surprising that they influenced and borrowed from each other both culturally and linguistically.

Evidence from the six cultivated plants as presented in Kano’s (1941a) paper indicates that there must have been close cultural contact between the Philippine people and some of the Formosan tribes in the eastern and southern coastal areas of Taiwan, namely Kavalan in the north-east, Amis on the east coast and Paiwan in the southern extremity of Taiwan. However, I do not think there is enough evidence to prove that these Formosan tribes migrated to Taiwan with these plants from the Philippines in the south, as Kano suggests in his paper.

There is more evidence for Formosan borrowings from the Philippine languages in some other plant names such as ‘mango’ and ‘persimmon’. The borrowing was not limited to Amis, Kavalan or Paiwan, as we can observe in the following examples (see also Tsuchida 1977:111-112):

<table>
<thead>
<tr>
<th>#84</th>
<th>#85</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘mango (*Mangifera indica)’</td>
<td>‘persimmon (Diospyros spp.)’</td>
</tr>
<tr>
<td>PSF 1 *maŋeθ</td>
<td>PSF 1 *qaDupa[Ry]</td>
</tr>
<tr>
<td>PHN 2 *kamaya(q)</td>
<td>PHN 2 *kamaya(q)</td>
</tr>
<tr>
<td>PSP 4 *lakay</td>
<td></td>
</tr>
</tbody>
</table>

| KAN 1 maŋase | ATA(Mx) karoohau |
| SAR 1 maŋesa | TSO hcuu |
| RUK(Ta) 2 kamaya | KAN maŋece |
| RUK(Bu) 2 kamaða | SAR ?asipi |
| RUK(Mg) 2 kamea | RUK(Ta) rado |
| RUK(To) 2 kamaya | RUK(Mg) rira |
| RUK(Mn) 1 maŋese | RUK(Mn) alu?u?u |
| BUN(Td) sanjav | BUN(Is) 1 hadupad |
| PAI(Bu) 1 maŋes | BUN(Tb) 1 qadupal |
| PAI(St) 2 kamaya | PAI(H) 2 kamaya |
| PAI(Tb) 1 maŋes | |
| PUY(Pn) 3 LaTu? | PUY(Pn) 1 ?adupar |
| | 2 kamaya |
| | |
| | 2 kamaya, kayama |
| | 2 kamaya |
| THA ruprup | PAZ xawixi? |
| SAI(Ta) 4 lakay | KAV 1 ?inupal |
| PAZ 4 lakay | AMI(Sa) 1 qalupal |
| | 2 kamaya |
| | kamaya |
| AMI(Sa) 1 maŋes (n- irregular) | YAM 2 kamala |
| KAV 2 kiama? | ITB 2 kamaya |
| SIR 2 kamea ‘fig’ | HNO 2 kamaya ‘an Ebenaceae sp.’ |
| YAM 3 natu? | CEB 2 amaga |
| ITB 1 manga | |

As Tsuchida (1977:111, Note 1) points out, “If Ceb *amaga ‘Diospyros spp.’ is cognate, the [PHN] reconstruction will be *[q/k]amaRa. Then the Formosan forms will have to be taken for Bashiic (i.e. Ivatan-Itbayaten-Yami) borrowing, and the Hanunoo word for North

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3 I am indebted to Robert Blust (pers.comm.) for bringing this to my attention. The Kavalan form does not show regular sound correspondences with the Philippine languages (see Li 1982).
Mangyan (i.e. Iraya, Alangan, Tadyawan on Mindoro) borrowing, where \( *R > y \) is regular. In other words, the other Formosan languages, including Rukai, Puyuma and Siraya, have also borrowed plant names from the Philippine languages, as manifested in the peculiar sound change \( *R > y \).^4

3.3 SEMANTIC SHIFTS

It is interesting to note the semantic shifts such as PAN \(*b\text{iraq} 'Alocasia' > 'leaf'\) (see #21), PAN \(*p\text{a}\text{gu}\text{DaN} 'pandanus' > 'pineapple'\) (#1) in most Formosan languages. There are some sporadic semantic shifts in some particular Formosan language(s), for example, PHN \(*t\text{a}\text{leq} 'pine tree' > \text{Bunun caag} (<\text{A} - \text{a} /\text{u}) 'torch, firewood'\) (#2), PAN \(*b\text{uluq} 'type of bamboo' > \text{Paiwan vuLuq} 'spear'\) (#4), PHN \(*p\text{a}\text{gey} 'rice plant, unhusked rice' > \text{Kanakanavu palai}, \text{Pazeh pazay}, \text{Amis panay} 'glutinous rice'\) (#9). The 'same' plant name may refer to different species or varieties of plant.

3.4 PLANTS WITH MEDICINAL USE

Quite a few plants have had medicinal uses by the natives in Taiwan, including guava, \textit{Cibotium barometz} (Smith),^5 \textit{Polypodium coronans} (Wall),^6 \textit{Houttuynia cordata} (Thunb),^7 \textit{Broussonetia papyrifera},^8 \textit{Ficus wightiana} (Wall),^9 \textit{Morus australis} (Poiret),^10 \textit{Elatostema edule} (C.B. Rob),^11 \textit{Polygonum chinense} L.,^12 \textit{Rumex crispus} L.,^13 \textit{Amaranthus spinosus} L.,^14 \textit{Portulaca oleracea} L.,^15 \textit{Bryophyllum pinnatum} (Lam.) (Kurz),^16 \textit{Cassia torosa} (Cav.),^17 \textit{Cassia tora} L.,^18 \textit{Pueraia hirsuta} (Matsum),^19 \textit{Geranium nepalense} (Sweet),^20 \textit{Oxalis corniculata} L., \textit{Murraya paniculata} (Jack),^21 \textit{Viala mandshurica} W.,^22 \textit{Begonia aptera} (Hay),^23 \textit{Melastoma candidum} D. (Don.),^24 \textit{Cryptotaenia japonica} (Hassk),^25 \textit{Solanum

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^4 I am indebted to Shigeru Tsuchida (pers.comm.) for bringing this to my attention.  
^5 This plant has been used to stop bleeding by applying its hairy part to the wound.  
^6 Its root or stem can be used to stop bleeding. The Tsouic and Rukaic languages employ the same terms to refer to this type of plant and to \textit{Asplenium nidus} (#39).  
^7 It has commonly been used to improve urination by ingestion. It can also be applied to Soils, sores and scabies to cure skin diseases or reduce infection.  
^8 It is used to cure vomiting, diarrhoea or dysentery; its new leaves can be applied to scabies.  
^9 Its milky sap can be used to reduce infection.  
^10 It is commonly used to cure snakebite and to reduce fever or infection.  
^11 It can be applied to wound; its fried leaves can be ingested to cure snakebite.  
^12 Its leaves are used to cure snakebite.  
^13 Its roots can be used to cure scabies or athlete's foot.  
^14 It is used to cure snakebite.  
^15 It has a similar medicinal use to \textit{Houttuynia cordata} (Thunb).  
^16 Its leaves are commonly used to stop bleeding, to disinfect and cure skin diseases, knife wounds or snakebite.  
^17 Its leaves are used to cure wounds, a toothache or a stomach-ache.  
^18 Its fried leaves can be ingested to cure eye disease.  
^19 Its roots are used to reduce a fever.  
^20 It is used to cure fish poisoning, wounds, diarrhoea, intestine and stomach troubles.  
^21 It leaves and roots can be used to cure diarrhoea and dysentery; its leaves are effective for pain-killing and reducing infection.  
^22 It is used to relieve internal heat or a fever.  
^23 It is used to reduce infection, relieve a fever, or cure snakebite.  
^24 Its fried leaves can cure a stomach-ache; its crushed leaves can be applied to snakebite wounds.
*Ebulus formosana, Gardenia jasminoides* (Ellis),\(^{26}\) *Bidens pilosa* L. var. *minor* (BL), *Citrus japonicum* DC.,\(^ {27}\) *Kalimeris indica*,\(^ {28}\) *Pogonatherum crinitum* (Thunb),\(^ {29}\) and even banana.\(^ {30}\) Unfortunately most of these plant names are not reconstructable for an earlier stage. Only a few of them can be reconstructed at the lower levels such as Proto Formosan, Proto Southern Tsouic (PST), Proto Northern Rukai (PNR, including Maga, Tona and Mantaura). Thus many of them are not included in this study.

### 3.5 Further Studies

Thousands of plants in Taiwan have been identified by botanists. Only some of them have plant names in some Formosan languages. I have collected some 300 plant names in some Formosan languages and dialects over the past twenty years. However, I have listed only (1) those plant names that relate Formosan languages with extra-Formosan languages and (2) those plant names that relate only to Formosan languages. More work needs to be done. Linguists and botanists will have to cooperate to work in this area. Linguists have problems identifying plants, while botanists have problems giving reliable transcriptions, especially for these less well-known languages. We may get many more cognates and valuable information when more thorough work is done. Such an endeavour may take years, but it is well worth the effort.

According to reports by botanists, the flora on Botel Tobago is quite different from that on Taiwan. Quite a few plants indigenous to Botel Tobago are not found in Taiwan at all. A careful investigation of the fauna and flora on Botel Tobago was carried out in 1988. Similar investigations need to be carried out on the Batanic Islands in the Philippines to determine whether Botel Tobago and these islands share the same fauna and flora. Joint efforts by linguists, botanists and zoologists will produce much more fruitful results.

### APPENDIX 1: COMPARATIVE WORDLIST OF PLANT NAMES

<table>
<thead>
<tr>
<th>#1</th>
<th>#2</th>
</tr>
</thead>
<tbody>
<tr>
<td>'pineapple (*Ananas comosus (Merr))'</td>
<td>'pine tree (Pinus morrisonicola (Hayata))'</td>
</tr>
<tr>
<td>PAN *pąguDaN(^ {31})</td>
<td>PHN *t'aleg</td>
</tr>
<tr>
<td>ATA(Mx)</td>
<td>pagran</td>
</tr>
<tr>
<td>KAN</td>
<td>(pąntan)(^ {33})</td>
</tr>
<tr>
<td>SAR</td>
<td>(pątal)</td>
</tr>
<tr>
<td>RUK(Bu)</td>
<td>paguDaIe</td>
</tr>
</tbody>
</table>

25 Its fresh leaves are crushed and then applied to snakebites or wasp stings.
26 Its leaves or flowers are applied to reduce infection.
27 It crushed roots are applied to snakebites and are used to stop bleeding.
28 It is commonly used to cure stomach troubles or urinary problems.
29 It is used to stop bleeding or to relieve a fever.
30 Its crushed leaves are applied to swollen areas to reduce infection.
31 It is interesting to note the semantic shift from PAN ‘pandanus’ to ‘pineapple’ in most modern Formosan languages. Pandanus is not a common plant in the aboriginal villages in Taiwan.
32 ATA(Sq) /hayuŋ/ ‘wood to start a fire’. ATA(Mx)/haŋ/ is a female form, and its corresponding male form is /hayrŋ/.
33 As Tsuchida (1977) points out, both Kanakanavu and Saaroa forms are “most likely loanwords from one of the Rukai dialects on the evidence of /u/-reflex for *D (there is no /d/ in either Kan or Sar)”. 
<table>
<thead>
<tr>
<th>PAI(H)</th>
<th>paguDalj</th>
<th>SAR</th>
<th>alege</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUY(Pn)</td>
<td>paguDal</td>
<td>RUK(Bu)</td>
<td>aLege</td>
</tr>
<tr>
<td>SAI(Ta)</td>
<td>pagran³⁴</td>
<td>BUN(Td)</td>
<td>caaq (&lt;A a/u) ‘torch’³⁵</td>
</tr>
<tr>
<td>KAV</td>
<td>panzan ‘pandanus’</td>
<td>PAI(H)</td>
<td>tareq</td>
</tr>
<tr>
<td>JAV</td>
<td>panDan</td>
<td>THA</td>
<td>tarin</td>
</tr>
<tr>
<td>SAM</td>
<td>fala</td>
<td>SAI(Ta)</td>
<td>haLeq</td>
</tr>
<tr>
<td>AMI(Sa)</td>
<td></td>
<td>AMI(Sa)</td>
<td>caLeq</td>
</tr>
<tr>
<td>ILK</td>
<td></td>
<td></td>
<td>saleq</td>
</tr>
<tr>
<td>PNG</td>
<td></td>
<td></td>
<td>saleq</td>
</tr>
</tbody>
</table>

#3
‘type of bamboo’

<table>
<thead>
<tr>
<th>PAN *qauR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATA(Mx)</td>
</tr>
<tr>
<td>TSO</td>
</tr>
<tr>
<td>KAN</td>
</tr>
<tr>
<td>SAR</td>
</tr>
<tr>
<td>BUN(Td)</td>
</tr>
<tr>
<td>PAI(H)</td>
</tr>
<tr>
<td>THA</td>
</tr>
<tr>
<td>SAI(Ta)</td>
</tr>
<tr>
<td>AMI(Fr)</td>
</tr>
<tr>
<td>SAA</td>
</tr>
</tbody>
</table>

#4-1
‘type of bamboo’

<table>
<thead>
<tr>
<th>PAN *buluq</th>
</tr>
</thead>
<tbody>
<tr>
<td>KAN</td>
</tr>
<tr>
<td>RUK(Bu)</td>
</tr>
<tr>
<td>PAI(H)</td>
</tr>
<tr>
<td>SAI(Ta)</td>
</tr>
<tr>
<td>PAZ</td>
</tr>
<tr>
<td>AMI(Fa)</td>
</tr>
<tr>
<td>SAM</td>
</tr>
</tbody>
</table>

#4-2
‘type of bamboo’

<table>
<thead>
<tr>
<th>PAN *kawayan</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUK(Bu)</td>
</tr>
<tr>
<td>PAI(H)</td>
</tr>
<tr>
<td>PUY(Kl)</td>
</tr>
</tbody>
</table>

#4-3
‘type of thin bamboo (*Sinobambusa kunishii (Nakai))’

<table>
<thead>
<tr>
<th>PSF *cekes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUK(Mn)</td>
</tr>
<tr>
<td>PAI(H)</td>
</tr>
<tr>
<td>AMI(Fr)</td>
</tr>
</tbody>
</table>

#5
‘mulberry (*Morus formosensis (Hotta))’

<table>
<thead>
<tr>
<th>PHN *taNiuD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATA(Sq)</td>
</tr>
<tr>
<td>TSO</td>
</tr>
<tr>
<td>KAN</td>
</tr>
<tr>
<td>SAR</td>
</tr>
<tr>
<td>RUK(Bu)</td>
</tr>
<tr>
<td>ITB</td>
</tr>
</tbody>
</table>

#6
‘fish poison (*Derris elliptica (Benth))’

<table>
<thead>
<tr>
<th>PAN *tuba</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATA(Mx)</td>
</tr>
<tr>
<td>SED(Tr)</td>
</tr>
<tr>
<td>SAI(Ta)</td>
</tr>
<tr>
<td>PAZ</td>
</tr>
<tr>
<td>JAV</td>
</tr>
<tr>
<td>FIJ</td>
</tr>
</tbody>
</table>

---
³⁴ The final n instead of the expected l is probably due to the assimilation to the preceding nasal.
³⁵ Note the semantic shift to ‘torch, firewood’ in Bunun. A pine tree was often used to start a fire and as a torch by the Formosan natives.
³⁶ There is a metathesised form /tlui?/ in some Squiliq dialects and in the Skikun dialect of Atayal.
<table>
<thead>
<tr>
<th>#7</th>
<th>#8</th>
</tr>
</thead>
<tbody>
<tr>
<td>rattan (<em>Daemonorops margaritae, Calamus margaritae)</em></td>
<td>sugarcane (<em>Saccharum officinarum)</em></td>
</tr>
<tr>
<td>PAN *quway</td>
<td>PAN *tebu/</td>
</tr>
<tr>
<td>ATA(Mx)</td>
<td>TSO</td>
</tr>
<tr>
<td>SED(Tn)</td>
<td>KAN</td>
</tr>
<tr>
<td>TSO</td>
<td>SAR</td>
</tr>
<tr>
<td>KAN</td>
<td>RUK(Bu)</td>
</tr>
<tr>
<td>SAR</td>
<td>PAI(H)</td>
</tr>
<tr>
<td>RUK(Bu)</td>
<td>TAU</td>
</tr>
<tr>
<td>BUN(Td)</td>
<td>KAV</td>
</tr>
<tr>
<td>PAI(H)</td>
<td>AMI(Sa)</td>
</tr>
<tr>
<td>PUY(Pn)</td>
<td>TAO</td>
</tr>
<tr>
<td>THA</td>
<td>PAZ</td>
</tr>
<tr>
<td>SAI(Ta)</td>
<td>AMI(Sa)</td>
</tr>
<tr>
<td>PAZ</td>
<td>KAV</td>
</tr>
<tr>
<td>KAV</td>
<td>AMI(Sa)</td>
</tr>
<tr>
<td>SAI(Ta)</td>
<td>THA</td>
</tr>
<tr>
<td>GAD</td>
<td>TAU</td>
</tr>
<tr>
<td>SAA</td>
<td>THA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>#9</th>
<th>#10-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>rice plant (<em>Oryza sativa)</em></td>
<td>rice (husked)</td>
</tr>
<tr>
<td>PAN *pag'ey</td>
<td>PHN *beRat/</td>
</tr>
<tr>
<td>ATA(Sq)</td>
<td>TSO</td>
</tr>
<tr>
<td>SED(Tr)</td>
<td>KAN</td>
</tr>
<tr>
<td>TSO</td>
<td>SAN</td>
</tr>
<tr>
<td>KAN</td>
<td>RUK(To)</td>
</tr>
<tr>
<td>RUK(Bu)</td>
<td>PAI(H)</td>
</tr>
<tr>
<td>BUN(Td)</td>
<td>PUY(Pn)</td>
</tr>
<tr>
<td>PAI(H)</td>
<td>KAV</td>
</tr>
<tr>
<td>THA</td>
<td>AMI(Sa)</td>
</tr>
<tr>
<td>SAI(Ta)</td>
<td>TAO</td>
</tr>
<tr>
<td>PAZ</td>
<td>PAP</td>
</tr>
<tr>
<td>KAV</td>
<td>FAV</td>
</tr>
<tr>
<td>AMI(Sa)</td>
<td>HOA</td>
</tr>
<tr>
<td>GAD</td>
<td>HOA</td>
</tr>
<tr>
<td>SAA</td>
<td>FIJ</td>
</tr>
</tbody>
</table>

---

37 Most Formosan languages have different terms for 'rice plant, unhusked rice', 'husked rice', and 'cooked rice'.
### SOME PLANT NAMES IN FORMOSAN LANGUAGES

#### #10-2

<table>
<thead>
<tr>
<th>Name</th>
<th>Formosan Language</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAN</td>
<td>*sem[æ]y</td>
<td>'rice (cooked)'</td>
</tr>
<tr>
<td>PAZ</td>
<td>sumay</td>
<td></td>
</tr>
<tr>
<td>AMI(Sa)</td>
<td>hemay</td>
<td></td>
</tr>
<tr>
<td>KAV</td>
<td>(?emay)³⁸</td>
<td></td>
</tr>
<tr>
<td>TAO</td>
<td>suma</td>
<td></td>
</tr>
<tr>
<td>BAB</td>
<td>sma</td>
<td></td>
</tr>
<tr>
<td>HOA</td>
<td>(smai)³⁹</td>
<td></td>
</tr>
<tr>
<td>BAS</td>
<td>sumay</td>
<td></td>
</tr>
<tr>
<td>KET</td>
<td>sumai</td>
<td></td>
</tr>
</tbody>
</table>

#### #11

<table>
<thead>
<tr>
<th>Name</th>
<th>Formosan Language</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAN</td>
<td>*kaluy</td>
<td>'tree'</td>
</tr>
<tr>
<td>ATAM(x)</td>
<td>kahuy</td>
<td></td>
</tr>
<tr>
<td>SED(Tn)</td>
<td>qhu-ni</td>
<td></td>
</tr>
<tr>
<td>TSO</td>
<td>evi</td>
<td></td>
</tr>
<tr>
<td>KAN</td>
<td>kaalu</td>
<td></td>
</tr>
<tr>
<td>SAR</td>
<td>kiu'u</td>
<td></td>
</tr>
<tr>
<td>PAI(H)</td>
<td>kasiw</td>
<td></td>
</tr>
<tr>
<td>PUY(Pn)</td>
<td>kawi</td>
<td></td>
</tr>
<tr>
<td>THA</td>
<td>kawi?</td>
<td></td>
</tr>
<tr>
<td>SAI(Ta)</td>
<td>kæhkey</td>
<td></td>
</tr>
<tr>
<td>PAZ</td>
<td>kahuy</td>
<td></td>
</tr>
<tr>
<td>AMI(Fr)</td>
<td>kasuy</td>
<td>'firewood'</td>
</tr>
<tr>
<td>BAB</td>
<td>hau</td>
<td></td>
</tr>
<tr>
<td>PAP</td>
<td>hee</td>
<td></td>
</tr>
<tr>
<td>HOA</td>
<td>hait</td>
<td></td>
</tr>
<tr>
<td>SIR</td>
<td>kayu</td>
<td></td>
</tr>
<tr>
<td>YAM</td>
<td>kayu</td>
<td></td>
</tr>
<tr>
<td>TAG</td>
<td>kæhoy</td>
<td></td>
</tr>
<tr>
<td>TON</td>
<td>?a-kau</td>
<td></td>
</tr>
</tbody>
</table>

#### #12

<table>
<thead>
<tr>
<th>Name</th>
<th>Formosan Language</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHN</td>
<td>*baNaR</td>
<td>'Smilax'</td>
</tr>
<tr>
<td>SED(Mx)</td>
<td>balag</td>
<td>'Smilax opace (A.DC) (Nort)'</td>
</tr>
<tr>
<td>TSO</td>
<td>balaw</td>
<td>'Smilax opace'</td>
</tr>
<tr>
<td>KAN</td>
<td>vanare</td>
<td></td>
</tr>
<tr>
<td>SAR</td>
<td>valare</td>
<td></td>
</tr>
<tr>
<td>SAI(Td)</td>
<td>RUK(To)</td>
<td>'Smilax oxyphylla (Wall)'</td>
</tr>
<tr>
<td>PAP</td>
<td>banal</td>
<td>'Smilax china/apace'</td>
</tr>
<tr>
<td>THA</td>
<td>valja</td>
<td></td>
</tr>
<tr>
<td>SAI(Ta)</td>
<td>ba-bala</td>
<td></td>
</tr>
<tr>
<td>KAV</td>
<td>banaR</td>
<td></td>
</tr>
<tr>
<td>ILK</td>
<td>banag</td>
<td></td>
</tr>
<tr>
<td>BTK</td>
<td>banal</td>
<td>'Smilax bracteata'</td>
</tr>
</tbody>
</table>

#### #13

<table>
<thead>
<tr>
<th>Name</th>
<th>Formosan Language</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHN</td>
<td>*NaCeŋ</td>
<td>'vegetable'</td>
</tr>
<tr>
<td>KAN</td>
<td>nateŋ (-t- irregular)</td>
<td></td>
</tr>
<tr>
<td>SAR</td>
<td>lateŋ (-t- irregular)</td>
<td></td>
</tr>
<tr>
<td>RUK(Bu)</td>
<td>laceŋe</td>
<td></td>
</tr>
<tr>
<td>PAI(H)</td>
<td>ljaceŋe</td>
<td></td>
</tr>
<tr>
<td>AMI(Fr)</td>
<td>lateŋ</td>
<td></td>
</tr>
</tbody>
</table>

#### #14-1

<table>
<thead>
<tr>
<th>Name</th>
<th>Formosan Language</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHN</td>
<td>*qu/uŋ</td>
<td>'type of mushroom (family Agaricaceae)'</td>
</tr>
<tr>
<td>KAN</td>
<td>nateŋ (-t- irregular)</td>
<td></td>
</tr>
<tr>
<td>SAR</td>
<td>lateŋ (-t- irregular)</td>
<td></td>
</tr>
<tr>
<td>RUK(Bu)</td>
<td>laceŋe</td>
<td></td>
</tr>
<tr>
<td>PAI(H)</td>
<td>ljaceŋe</td>
<td></td>
</tr>
<tr>
<td>AMI(Fr)</td>
<td>lateŋ</td>
<td></td>
</tr>
</tbody>
</table>

³⁸ Kavalan may have borrowed its form from Amis in which the initial h- is also irregular.
³⁹ Hoanya loses *-y, so its smai may be a loan.
<table>
<thead>
<tr>
<th>HOA</th>
<th>lasen</th>
<th>RUK(Mn)</th>
<th>?ugu</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILK</td>
<td>nateg</td>
<td>BUN(Td)</td>
<td>quuq</td>
</tr>
<tr>
<td></td>
<td></td>
<td>THA</td>
<td>quun</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ILK</td>
<td>oog (generic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEB</td>
<td>uhuq</td>
</tr>
</tbody>
</table>

#14-2
'type of white mushroom'
PSF *baliw
PUY(Pn) baliw
KAV vaniw
AMI(Fr) faniw

#14-3
'type of white mushroom'
PRT *quuni
KAN ?uni
SAR ?uni
RUK(Bu) uni
RUK(Mn) (?uni)\(^*\)

#15
'Solanum nigrum'\(^*\)
PAN *samici
TSO mici
KAN m-amici
SAR l-amici
RUK(Ta) amici
PAI(H) samici
PUY(Pn) ?amTi
THA q-amTi\(^?\)
BTK amti

#16
'bark (of tree)'
PAN *kuliC
TSO rici 'peelings of tubers'
KAN kuici 'peelings of fruit or tubers'
SAR kulici 'peelings of fruit or tubers'
RUK(Ta) amici
PAI(H) kuLiC 'penis'\(^*\)
PUY(Pn) kuLiT
SAI(Ta) kuLiS 'peel of fruit'
YAM kulit
FIJ kuli 'skin, bark, peel'

#17
'flower'
PHN *pahpah
ATA(Mx) pahpah
SED(Tn) phepah
AMI(Sa) papah 'leaf'
TAG p-al-a:pq 'spring leaf'

#18
'branch, bifurcation'
PAN *paga
THA pana?
SAI(Ta) paga?
PAZ paga?
IN paga? 'jaw'
SAM maga 'fork, twig'

#19
'fruit'
PAN *buaq
KAN vua?e 'orange'\(^*\)

#20
'sprout, bamboo shoot'
PAN *buaq
KAN cuvu?u 'bamboo shoot'

\(^*\) Mantauran ? indicates that it was probably a loan from Saaroa.
\(^*\) Its crushed roots or leaves are applied to swollen feet to detoxify or reduce infection.
\(^*\) Note the interesting semantic shift from 'bark, skin' to 'penis' in Paiwan.
\(^*\) Note the semantic narrowing in Kanakanavu.
SOME PLANT NAMES IN FORMOSAN LANGUAGES 253

<table>
<thead>
<tr>
<th>PAI(H)</th>
<th>vuaq 'type of round edible tuber'</th>
<th>SAR</th>
<th>cuvu?u 'bamboo shoot'</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUY(Pn)</td>
<td>bua?</td>
<td>RUK(Bu)</td>
<td>s-cubu</td>
</tr>
<tr>
<td>BAB</td>
<td>boa</td>
<td>RUK(Mn)</td>
<td>?a-cuvu 'treetop'</td>
</tr>
<tr>
<td>SIR</td>
<td>voa</td>
<td>PAI(H)</td>
<td>cuvuq 'bamboo shoot'</td>
</tr>
<tr>
<td>TON</td>
<td>fua</td>
<td>AMI(Sa)</td>
<td>(tabuq)</td>
</tr>
</tbody>
</table>

#21
'leaf (Alocasia cucullata (Schott))'

<table>
<thead>
<tr>
<th>PAN *biRaq</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUK(To)</td>
</tr>
<tr>
<td>RUK(Mn)</td>
</tr>
<tr>
<td>PUY(Pn)</td>
</tr>
<tr>
<td>THA</td>
</tr>
<tr>
<td>SAI(Ta)</td>
</tr>
<tr>
<td>KAV</td>
</tr>
<tr>
<td>TAO</td>
</tr>
<tr>
<td>BAB</td>
</tr>
<tr>
<td>IN</td>
</tr>
<tr>
<td>TBA</td>
</tr>
<tr>
<td>FIJ</td>
</tr>
</tbody>
</table>

#22
'Ebulus formosana, Sambucus formosana (Nakai)'

<table>
<thead>
<tr>
<th>PFN *NayaD</th>
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<tbody>
<tr>
<td>ATA(Mx)</td>
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<td>SED(Td)</td>
</tr>
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<td>KAN</td>
</tr>
<tr>
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</tr>
<tr>
<td>BUN(Td)</td>
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<td>AMI(Sa)</td>
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#23
'Cordia myxa (Linnaeus), plant with small sticky fruits'

<table>
<thead>
<tr>
<th>PAN *quNuNaI</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSO</td>
</tr>
<tr>
<td>KAN</td>
</tr>
<tr>
<td>SAR</td>
</tr>
<tr>
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</tr>
<tr>
<td>TSO</td>
</tr>
<tr>
<td>SAR</td>
</tr>
<tr>
<td>RUK(Bu)</td>
</tr>
</tbody>
</table>

#24
'Cypress (Taiwania cryptomerioides)'

The vowel /a/ in the Sakizaya dialect tabuq and the /e/ in Farangaw dialect tefuq are unexplained.

Note the semantic shift from 'Alocasia' to 'leaf' in most of the Formosan languages. Rukai is the only Formosan language that retains the archaic meaning of 'Alocasia'. People in Taiwan used to use Alocasia leaves to wrap up groceries such as fresh meat and fish.

The plant is used medicinally by the natives. Its root and leaves are crushed or ground and then applied to a swollen area or a wound to reduce infection.

The initial vowel in the form dayac of the Toda dialect presents a problem, and both the initial and the second vowel in the form dayuc in the Tongan dialect present problems if these forms are treated as cognates.

This cognate was originally reconstructed as PHN *baNiR by Tsuchida (1976:140). I have revised the reconstructed form to *baNhiR, based on the evidence in Bunun and Saisiyat.

As stated in Tsuchida, "All Rukai dialects [are derived] from *b-aR-aNiR".

---

44 The vowel /a/ in the Sakizaya dialect tabuq and the /e/ in Farangaw dialect tefuq are unexplained.
45 Note the semantic shift from 'Alocasia' to 'leaf' in most of the Formosan languages. Rukai is the only Formosan language that retains the archaic meaning of 'Alocasia'. People in Taiwan used to use Alocasia leaves to wrap up groceries such as fresh meat and fish.
46 The plant is used medicinally by the natives. Its root and leaves are crushed or ground and then applied to a swollen area or a wound to reduce infection.
47 The initial vowel in the form dayac of the Toda dialect presents a problem, and both the initial and the second vowel in the form dayuc in the Tongan dialect present problems if these forms are treated as cognates.
48 This cognate was originally reconstructed as PHN *baNiR by Tsuchida (1976:140). I have revised the reconstructed form to *baNhiR, based on the evidence in Bunun and Saisiyat.
49 As stated in Tsuchida, "All Rukai dialects [are derived] from *b-aR-aNiR".
MAL  

<table>
<thead>
<tr>
<th>MAL</th>
<th>nunaq ‘a tree with fruit producing a sticky sap used as gum’</th>
<th>RUK(Mg)</th>
<th>bali</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>RUK(To)</td>
<td>ba?ali</td>
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<td></td>
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<td>RUK(Mn)</td>
<td>va?ali</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BUN(Td)</td>
<td>banhil ‘cypress, board’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PAI(H)</td>
<td>valji ‘board’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SAI(Ta)</td>
<td>balihL-əeh⁵⁰ (&lt;M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MAL</td>
<td>banir ‘buttress-like projection from a tree-trunk’</td>
</tr>
</tbody>
</table>

#25

| PHN | *bin/iq  
|-----|---------  
| BUN(Tb) | binsiq  
| PUY(Pn) | binl?  
| SAI(Ta) | binli?  
| MAL | benih ‘seed, sowing’  

#26

| PHN | *[dD]uRih 
|-----|---------  
| BUN(Td) | duli  
| PAI(H) | djui  
| BAB | to-i  
| HOV | rui  

#27

| PHN | *teNuq  
|-----|---------  
| KAN | tene?e (<A e/u) ‘resin, sap’  
| SAR | tele?-a (<A e/u) ‘resin, sap’  
| RUK(Bu) | tulu (<A u/e) ‘resin, sap’  
| CEB | tuno? ‘milk of fruit’  
| SAL | tono ‘coconut milk’  

#28

| PFN | *DaRa  
|-----|---------  
| ATA(Mx) | raga?  
| SED(Tn) | dara?  
| BUN(Td) | dala? (<A ɬ/s-)  
| THA | ɬala? (<A ɬ/s-)  
| SAI(Ta) | raLa?  
| PAZ | daxa?  

#29

| PFN | *tanaq  
|-----|---------  
| ATA(Mx) | (tana?)⁵³  
| TSO | tnoo  
| KAN | tana?e  
| SAR | tane?e  
| RUK(Bu) | tana  
| BUN(Td) | (tana?)  
| PAI(H) | tjanaq  
| PUY(Pn) | tana?  

#30

| PFN | *Dake/  
|-----|---------  
| ATA(Mx) | rakus  
| SED(Tn) | (cakus)⁵⁴  
| KAN | c?osa  
| TSO |  
| KAN | cakese  
| RUK(Bu) | Dakese  
| BUN(Td) | daksus  
| PAI(H) | Dakus  
| PUY(Pn) | Dakes  

---

⁵⁰ In addition to the metathesis of *hi > ih, the final segments aeh are unexplained.

⁵¹ The Formosan peoples grow mushrooms on the maple tree.

⁵² Taiwanese products of camphor laurel used to be the largest in quantity in the world before 1945.

⁵³ Both Atayal tana? and Bunun tana? are probably loans from the other languages. Their regular reflex for *-q is -q.

⁵⁴ The initial vowel in the Sediq form presents a problem, should it be treated as a cognate. The Sediq form is probably a loan from a Tsouic language (e.g. Kan cakese).
THA ta-tanaq
SAI(Ta) tane?
PAZ tana?
KAV tani?
AMI(Sa) tanaq

THA \(\text{/akif (\text{<A \text{/-/s-}})}\)
SAI(Ta) rake/
PAZ dakes
KAV zaqes
AMI(Sa) rakes

#31
'banana (*Musa sapientum (Linnaeus))'
PFN *belbel\(^{55}\)

SED(Tn) blebul
TSO fxæfxæ 'wild banana'
KAN ta-veneve 'raw banana'
SAR ta-velevele
RUK(Bu) belebele
BUN(Td) bunbun
PAI(H) veljvelj
PUY belbel
THA fiôfiô
PAZ belebel
BAB bilpil
PAP bibul
HOA bulbul
SIR bulbul

THA lamaq
PAZ sama?
KAV saIni?
AMI(Sa) samaq

#32
'Sonchus oleraceus (Linnaeus), Lactuca indica'
PFN *samaq

SED(Tn) (sama balay)\(^{56}\)
TSO (samaka)\(^{57}\)
KAN sama?e
SAR (sama?e)\(^{58}\)
RUK(Bu) sama
BUN(Td) samaq
PAI(H) samaq
PUY(Kl) amaR
THA lamaq
PAZ sama?
KAV sami?
AMI(Sa) samaq

#33
'Alocasia macrorrhiza'\(^{59}\)

PAN 1*biRaq\(^{61}\)
PAT 2 *bagayag
PT 3 *calu?u
PSP 4 *byaraR
ATA(Pl) 2 bagayaw
ATA(Sk) bgayax
SED(Td) 2 brayaw

#34
'Lagerstroemia subcostata (Koehne)'

PSF 1 *D[i/u]i(ie)Let'
PSF 2 *?aCeR

ATA(Mx) hukilu/?hawku\(^{62}\)

#35
Batanic languages have cognate forms such as vineveh (see Tsuchida et al. 1987:51), which seem to be related to the Formosan forms. However, most Formosan forms indicate that they are reduplications of the same syllable, whereas the Batanic forms are not.

#36
This literally means 'a real native vegetable'. The regularly derived form in Sediq should be *samaq. The loss of -q indicates that sama is probably a loan from another Formosan language.

#37
The regularly derived form in Tsou should be *sama. The form samaka is probably a loan from Bunun.

#38
The regular derived form in Saaroa should be *ama?e. The unexpected initial indicates that it is a loan from Kanakanavu.

#39
There are two types of Alocasia, Alocasia macrorrhiza (with big leaves) and Alocasia cucullata (with small leaves).

#40
The same cognate set is preceded by the same number.

#41
See under 'leaf' (#21).

#42
Atayal distinguishes between male and female forms (see Li 1982); they are listed in that order separated by a slash in this paper.
256  PAUL JEN-KUEI LI

<table>
<thead>
<tr>
<th>TSO</th>
<th>3</th>
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<td>KAN</td>
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<td>caluʔu</td>
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<td>?ali-seer-a (&lt;A )</td>
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<td>biʔa</td>
<td>RUK(Bu)</td>
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<td>Dilirsi</td>
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<td>RUK(Mn)</td>
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<td>δileLe</td>
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<tr>
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<td>baihal</td>
<td>BUN(Td)</td>
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<td>naiʔatul</td>
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<td>PAI(H)</td>
<td></td>
<td>qayjuay</td>
<td>PUY(Pn)</td>
<td>1</td>
<td>(DaLines)</td>
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<tr>
<td>THA</td>
<td></td>
<td>siʔadeq</td>
<td>THA</td>
<td></td>
<td>qalit</td>
</tr>
</tbody>
</table>
| SAI(Ta) | 4 | byaraʔ | SAI(Th) | 2 | ?ase:
| PAZ   | 4 | biarax | PAZ   | 2 | ?axex (<A x/s) |
|       |   |        | KAV   | 1 | zines |

#35
'taro (*Colocasia esculenta)'  
PFN 1  *CaLiH  
PSP 2  *(dD)ukul

#36
'Alpinia speciosa (Schum.)'  
PFN 1  *basiyaw  
PT 2  *tapaʔe  
PR 3  *sali  
PSF 4  *Regat'

<table>
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<tr>
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<th>1</th>
<th>caiʔ?</th>
<th>ATA(Mx)</th>
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<th>basiyaw</th>
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<td>KAN</td>
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<td>SAR</td>
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<td>?intavaŋ</td>
<td>SAR</td>
<td>2</td>
<td>tapæ</td>
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<td>RUK(Bu)</td>
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<td>RUK(Mg)</td>
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<td>BUN(Td)</td>
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<td>siʔu</td>
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<td>ḡat</td>
<td>PUY(Pn)</td>
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<td>THA</td>
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<td>ḳanʔi(&lt;A l/c)</td>
<td>THA</td>
<td></td>
<td>raʔu</td>
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<tr>
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<td>SAI(Th)</td>
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<td></td>
<td>ʔevataʔ?</td>
<td>KAV</td>
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<td>nanel</td>
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<tr>
<td>AMI(Sa)</td>
<td>4</td>
<td>ʔaLiʔ</td>
<td>AMI(Sa)</td>
<td>4</td>
<td>La-Leŋac</td>
</tr>
</tbody>
</table>

#37
'sweet potato (*Ipomoea batatas)'
PFN 1  *buga  
PFN 2  *tamemí  
PFN 5  *qawpiR(?)

#38
'Alsophila pustulosa (H. Chr.), type of fern'
PFN 1  *giril  
PHN 2  *qaRa  
PSF 3  *t'ekiŋ  
PFN 4  *bukaw

<table>
<thead>
<tr>
<th>ATA(Mx)</th>
<th>1</th>
<th>bugaʔ?</th>
<th>ATA(Ms)</th>
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<td>ATA(Mt)</td>
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<td>?aga</td>
<td></td>
<td></td>
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"sweet potato (*Ipomoea batatas)'
'Alsophila pustulosa (H. Chr.), type of fern'
### Some Plant Names in Formosan Languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Code</th>
<th>Plant Name</th>
<th>Language</th>
<th>Code</th>
<th>Plant Name</th>
</tr>
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<tr>
<td>SED(Tn)</td>
<td>1</td>
<td>buga?</td>
<td>SED(Tn)</td>
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<td>giril</td>
</tr>
<tr>
<td>TSO</td>
<td>2</td>
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<td>TSO</td>
<td>1</td>
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<td>KAN</td>
<td>3</td>
<td>tamemi</td>
<td>KAN</td>
<td>2</td>
<td>sikiŋ (&amp;A i/e)</td>
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<tr>
<td>SAR</td>
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<td>(mairag)63</td>
<td>SAR</td>
<td>3</td>
<td>sikiŋ (&amp;A i/e)</td>
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<tr>
<td>RUK(Bu)</td>
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<td>RUK(Mg)</td>
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<td></td>
<td></td>
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**‘Asplenium nidus’**

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<td>KAN</td>
<td>1</td>
<td>vanaje</td>
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<tr>
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<td>11</td>
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<td>2</td>
<td>vanaje</td>
</tr>
<tr>
<td>RUK(Bu)</td>
<td>12</td>
<td>Lukucu</td>
<td>RUK(Bu)</td>
<td>3</td>
<td>bagase</td>
</tr>
<tr>
<td>RUK(To)</td>
<td>13</td>
<td>ukucu</td>
<td>RUK(To)</td>
<td>4</td>
<td>bagase</td>
</tr>
<tr>
<td>RUK(Mn)</td>
<td>14</td>
<td>Luku-Lukucu</td>
<td>RUK(Mn)</td>
<td>5</td>
<td>dïhi?i</td>
</tr>
<tr>
<td>BUN(Td)</td>
<td>15</td>
<td>kadaga?</td>
<td>BUN(Td)</td>
<td>6</td>
<td>PAI(H)</td>
</tr>
</tbody>
</table>

---

63 Saaroa and Mantauran may have borrowed the form mairag from each other.
64 Rukai (Budai) and Rukai (Maga) may have borrowed their forms from Paiwan.
65 The Budai form is probably a loan from Paiwan.
66 Thao may have borrowed this form from Atayal or Sediq.
67 Transcriptions of the extinct languages are not reliable.
PAI(H)  2  rukuc  SAI  1  baga/  
PUY(Pn)  2  LukuT  KAV  1  vaqas  
THA  tava/i?  AMI(Fr)  1  laqas  
SAI(Ta)  rauku?  
KAV  krivakiv  
AMI(F)  2  Lukut  

#41  ‘poisonous tree nettle’  

(Laportea pterostigma (Wedd), Laportea subglabra (Hayata))’

PAN  1  *dalatej  PRT  *pili  
PNF  2  *baRasuq  
PRT  3  *p(aR)ag'ase  
ATA(Mx)  2  bagasuq  AT(A(Sq)  sqiy  
AT(A(Mx)  hikul  
SED(Tn)  dresiq  SED(Tn)  srkunux  
SED(Td)  dkiya?  
TSO  ?ruu, fresi  TSO  1  pix-o  
KAN  3  p-ar-arase  KAN  1  piini  
SAR  (pararase)  SAR  1  i-pili  
RUK(Ta)  3  ?agase  RUK(Ta)  1  ?ili  
RUK(Mg)  3  l-pagse  RUK(Mg)  1  pili  
RUK(To)  3  p'agase  RUK(Mn)  1  pili  
RUK(Mn)  3  paha?e  
BUN(Td)  kaladidu?  BUN(Td)  sapli?a?  
PAI(H)  vaDelu  PUY(Pn)  lipada/aran  
PUY(Pn)  LigaTen  THA  ?alamido  
THA  tul/uq  KAV  selegi?  
SAI(Ta)  1  (kæh)Lasgi?  AMI(Sa)  sedeg  
PAZ  2  baxasa? (<A a/u)  
KAV  peLagi?  

#43  ‘soapberry (Sapindus mukorossi, Dracontomelum edule)’

‘Diplazium esculentum (Sw.)’

PAN  1  *Daqu  PNF  1  *rumaJa  
PFN  2  *maRu?  
ATA(Sq)  masa?  AT(A(Ms)  1  yamaJa?  
ATA(Mx)  1  mala?  
KAN  1  caa?u  SED(Tn)  1  lamaJa? (<A lfr)  

---

68  Both nettle plants, *Laportea pterostigma* (Wedd) and *Urtica thunbergiana* (#42), are thorny and cause great pain if touched.

69  This is a loan from Kanakanavu, based on the evidence that the Saaroa reflex for *g*’is ø, not s.

70  Kavalan may have borrowed its form from Amis.

71  The new growth or tender part of the plant is used as an uncultivated vegetable.

72  The natives used it as soap in the past.
<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Formosan Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Oxalis repens (Thunb)'</td>
<td>SAR 1 caa?u</td>
</tr>
<tr>
<td>'Melothria heterophylla (Cogn.)'</td>
<td>RUK(Bu) 2 mauju</td>
</tr>
<tr>
<td>'Bidens pilosa (Linnaeus)'</td>
<td>RUK(Mg) 2 moqju</td>
</tr>
<tr>
<td>'Erechtites (S.P.)'</td>
<td>RUK(To) 2 ma?uqju</td>
</tr>
<tr>
<td>'loquat (Eriobotrya deflexa)'</td>
<td>RUK(Mn) 2 ma?uqju</td>
</tr>
<tr>
<td>'Panicum miliaceum (Linnaeus)'</td>
<td>PUY(Pn) 2 pa?at</td>
</tr>
</tbody>
</table>

---

73 This plant grows all over Taiwan. It is used to heal wounds including snakebites as well as scabies.
74 It is commonly used to cure kidney disease. It is also used to relieve a fever or reduce infection.
75 Based on Tsuchida (1977).
'sorghum (*Andropogon sorghum*)

PFN *bala yans

SED(Tn) brisan

PUY(Lp) vaLa ysan

(-s- irregular)\textsuperscript{76}

KAV vLa ysan

AMI(Sa) baLa yans

'Sammemtina undulata (BR.)*

PRT *laquDipi

KAN na?ucipi-ni

SAR (laa nga sipi)

RUK(Bu) lau Dipi

'Chenopodium album (Linnaeus)*

PSF 1 *kuarR

PBT 2 *muken

PPP 3 *du Li

TSO 1 vora

KAN 1 kuare

SAR 1 kuare

BUN(Td) 2 mukan

PAI(H) 3 dju Li

PUY(Pn) 3 du Li

THA 2 mukan

AMI(Sa) 1 kowal

'Celosia argentea L.*

PRT *ku gia

KAN ku gia\textsuperscript{a}

SAR kuni?\textsubscript{a} (<D n/g)

RUK(Mg) ku gia

RUK(To) ku gia

RUK(Mn) ku gia

'Litsea cubeba (Lour.)*

PFN *maqaw

KAN ATA(Mx) maqaw

SAR RUK(Mn) amau (<M m-q/q-m) 'black alder'

RUK(Mg) ku gia

RUK(To) ku gia

BUN(Td) maqaw

THA maqaw

SAI(Ta) ma?aw

\textsuperscript{76} Both Puyuma and Kavalan may have borrowed from Amis.
SOME PLANT NAMES IN FORMOSAN LANGUAGES 261

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Pai(H)</th>
<th>Puy(Pn)</th>
<th>Ami(F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cinnamon (Cinnamomum macrostemon (Hayata))</td>
<td>maqaw 'an alder, Alnus japonica'</td>
<td>ma?aw 'an alder, Alnus formosana'</td>
<td>p-in-aqaw 'black alder, Alnus'</td>
</tr>
</tbody>
</table>

### #59

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Pai(H)</th>
<th>Puy(Pn)</th>
<th>Ami(F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'cinnamon (Cinnamomum macrostemon (Hayata))'</td>
<td>maqaw 'an alder, Alnus japonica'</td>
<td>ma?aw 'an alder, Alnus formosana'</td>
<td>p-in-aqaw 'black alder, Alnus'</td>
</tr>
</tbody>
</table>

### #60

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Pai(H)</th>
<th>Puy(Pn)</th>
<th>Ami(F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Solanum incanum'</td>
<td>maqaw 'an alder, Alnus japonica'</td>
<td>ma?aw 'an alder, Alnus formosana'</td>
<td>p-in-aqaw 'black alder, Alnus'</td>
</tr>
</tbody>
</table>

### #61

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Pai(H)</th>
<th>Puy(Pn)</th>
<th>Ami(F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Passiflora edulis (Sims)'</td>
<td>maqaw 'an alder, Alnus japonica'</td>
<td>ma?aw 'an alder, Alnus formosana'</td>
<td>p-in-aqaw 'black alder, Alnus'</td>
</tr>
</tbody>
</table>

### #62

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Pai(H)</th>
<th>Puy(Pn)</th>
<th>Ami(F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Rubus parvifolius (Linnaeus), Rubus taiwanianus'</td>
<td>maqaw 'an alder, Alnus japonica'</td>
<td>ma?aw 'an alder, Alnus formosana'</td>
<td>p-in-aqaw 'black alder, Alnus'</td>
</tr>
</tbody>
</table>

---

77 This plant is used as an herbal medicine to reduce pain and infection through ingestion. It is believed to be very useful in curing liver disease.

78 The bark of the plant is edible and has a good flavour.

79 This is a loanword from Japanese tokeisu 'clock plant', and it is so called because its flower looks like a clock (Tsuchida, pers.comm.).

80 Saaroa has borrowed from Kanakanavu as shown by its irregular -s-. Similarly Mantauran has borrowed from Tona or Maga as shown by its irregular -s-.
<table>
<thead>
<tr>
<th>#65</th>
<th>'Imperata cylindrica'</th>
<th>#66</th>
<th>'cucumber (*Cucumis sativus)'</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNF</td>
<td>1</td>
<td>PNF</td>
<td>1</td>
</tr>
<tr>
<td>PAN</td>
<td>2</td>
<td>PNF</td>
<td>2</td>
</tr>
<tr>
<td>PPP</td>
<td>3</td>
<td>PHN</td>
<td>3</td>
</tr>
<tr>
<td>SED(Tn)</td>
<td>1</td>
<td>PAN</td>
<td>2</td>
</tr>
<tr>
<td>TSO</td>
<td>2</td>
<td>PAN</td>
<td>2</td>
</tr>
<tr>
<td>KAN</td>
<td>2</td>
<td>PAN</td>
<td>2</td>
</tr>
<tr>
<td>SAR</td>
<td>2</td>
<td>PAN</td>
<td>2</td>
</tr>
<tr>
<td>BUN(Td)</td>
<td>2</td>
<td>*Remg'a</td>
<td>*tabuil</td>
</tr>
<tr>
<td>PAI(H)</td>
<td>3</td>
<td>*(we-)Riaq</td>
<td>*baRat</td>
</tr>
<tr>
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<td>*rabuC</td>
<td>*biNauR (?)</td>
</tr>
<tr>
<td>THA</td>
<td>1</td>
<td>SAI(Ta)</td>
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</tr>
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<td>2</td>
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<tr>
<td>PUY(Pn)</td>
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<td>KAN</td>
<td>2</td>
</tr>
<tr>
<td>*erela &lt; *eriya</td>
<td>81</td>
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<td>2</td>
</tr>
<tr>
<td>*rabuC</td>
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</tr>
<tr>
<td>*rabuT</td>
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<td>PUY(Pn)</td>
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</tr>
<tr>
<td>*ulEq</td>
<td>81</td>
<td>KAV</td>
<td>3</td>
</tr>
<tr>
<td>*eritya</td>
<td>81</td>
<td>AMI(Sa)</td>
<td>3</td>
</tr>
<tr>
<td>*cucumber (*Zingiber officinale')</td>
<td>81</td>
<td>SIR</td>
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<tr>
<td>*Du(k)Duk</td>
<td>81</td>
<td>YAM</td>
<td>3</td>
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<td>viraur (-r- irregular)</td>
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<tr>
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<td>*tabuLulu</td>
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<td>ATA(Mx)</td>
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<td>ATA(Qq)</td>
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<td>*sukuk</td>
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<tr>
<td>*dukuduk</td>
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<td>RUK(Mg)</td>
<td>3</td>
</tr>
<tr>
<td>*dukuduk</td>
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<td>RUK(Mn)</td>
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<td>*tabo</td>
<td>*tabo</td>
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<td>FAV</td>
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<table>
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<th>'gourd, calabash (*Lagenaria sp.)'</th>
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</tr>
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<td>PUY(Pn)</td>
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<tr>
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</tr>
<tr>
<td>*dukuduk</td>
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<td>83</td>
</tr>
<tr>
<td>*tahbe*</td>
<td>83</td>
</tr>
</tbody>
</table>

| #69 | 'pumpkin, squash (*Cucurbita moschata)'
<table>
<thead>
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</thead>
<tbody>
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<td>*siah</td>
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</tr>
<tr>
<td>*siah</td>
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</tbody>
</table>

---

81 See Tsuchida 1976:201, Note 115.
83 Tsou may have borrowed from BUN(Is) siah (see Tsuchida 1977:96, Note 2).
| KAN | 3 | tagetage | KAV | 2 | saquR |
| SAR | 4 | (vusiak)e | AMI(Sa) | 2 | sakuL |
| RUK(Ta) | 2 | (taramu-na-ke) | | | |
| RUK(Mg) | 3 | tətəpə | | | |
| RUK(To) | 3 | tagetage | | | |
| BUN(Td) | bahat | | | | |
| PAI(H) | 4 | siyak | | | |
| PUY(Pn) | 4 | siak | | | |
| PAZ | 1 | baun | | | |
| AMI(Sa) | 2 | tamurak | | | |
| FAV | 2 | baun | | | |

#71
‘Pueraria hirsuta (Matsum)’
PFN *basay

| ATA(Mx) | basay ‘type of vine’ | TSO | fəsəi | RUK(Mg) | bsee | BUN(Is) | basəd |
| ATA(Mx) | qa-qnus | BUN(Td) | qanuS | KAV | ?enus (-e- irregular) |

#72
‘Begonia aptera (Hay)’
PFN *qanuS

| ATA(Mx) | qa-qnus |

#73
‘Emilia sonchifolfa’
PR *tamu?usu

| RUK(Bu) | tamuusu |
| RUK(Mg) | tmoso |
| RUK(To) | tamu?usu |
| RUK(Mn) | tamu?u |

#74
‘Phragmites longivalvis (Steud.)’
PFN *qaluR

| ATA(Sq) | qolu? |
| ATA(Sk) | q-qaulu? |
| ATA(Mx) | qaglu? |
| SED(Td) | ?olu? |
| SED(Tr) | glu? |
| AMI(F) | qardo? |

#75
‘beans and peas (in general)’
PFN *qalidaŋ

| ATA(Mx) | qagiraŋ |
| TSO | recəi (<A i/o) ‘pigeon peas’ |
| KAN | ?aricaŋ ‘pigeon peas’ |
| SAR | ?arisaŋ ‘pigeon peas’ |
| BUN(Td) | qalidaŋ ‘pigeon peas’ |
| PAI(Bu) | qaRizaŋ ‘string beans’ |
| PAZ | xaidaŋ(<M) |
| BAB | eran ‘certain small beans’ |
| SIR | agisang ‘broad beans’ |

#76
‘pigeon peas (*Cajarus cajan (M.)’
PNF *siŋet

| ATA(Mx) | siput |
| SED(Tr) | supuc (<A u/i) |
| SAI(Ta) | feŋeṭ (<A e/i) |

---

84 Saaroa vu- is unexplained.
85 Rukai -na- is unexplained.
APPENDIX 2: FINDERLIST OF RECONSTRUCTED PLANT NAMES

Alocasia macrorrhiza, #33
Alpinia speciosa (Schum.), #36
Alsophila pustulosa (H. Chr.), type of fern, #38
Aralia decaisneana (Hance), #29
Asplenium nidus, #39
bamboo, type of, #3
bamboo, type of, #4-1
bamboo, type of, #4-2
bamboo, type of thin (Sinobambusa kunishii (Nakai)), #4-3
banana (*Musa sapientum (Linnaeus)), #31
banyan (Ficus retusa (Linnaeus)), #82
bark (of tree), #16
beans and peas (in general), #75
Begonia aptera (Hay), #72
Bidens pilosa (Linnaeus), #47
Biscofia trifoliata (Hook), #70
branch, bifurcation, #18
breadfruit (Artocarpus communis), #77
Cammetiina undulata (BR.), #53
camphor laurel (Cinnamomum camphora), #30
Celosia argentea L., #57
Chenopodium album (Linnaeus), #55
Cibotium barometz (Smith), type of edible fern, #83
cinnamon (Cinnamomum macrostemon (Hayata)), #59
Cordia myxa (Linnaeus), plant with small sticky fruits, #23
cucumber (Cucumis sativus), #66
cypress (Taiwania cryptomerioides), #24
Dioscorea doryophora (Hance), #54
Dioscorea rhipogonioides (Oliv.), #81
Diplazium esculentum (Sw.), #44
Ebulus formosana, Sambucus formosana (Nakai), #22
Emilia sonchifolfa, #73
Erechtites (S.P.), #48
Fiji longan (Pometia pinnata), #78
fish poison (Derris elliptica (Benth)), #6
flower, #17
fruit, #19
ginger (Zingiber officinale), #67
Gnaphalium multiceps (Wall.), #63
gourd, calabash (Lagenaria sp.), #68
Hibiscus taiwanensis (S.Y. Hu), #56
Imperata cylindrica, #65
juice, #27
Lactuca indica, #32
Lagerstroemia subcostata (Koehe), #34
leaf (Alocasia cucullata (Schott)), #21
Litsea cubeba (Lour.), #58
loquat (Eriobotrya deflexa), #49
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mushroom, type of white, #14-3
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THE RAW AND THE COOKED: PROTO OCEANIC TERMS FOR FOOD PREPARATION

FRANTIŠEK LICHTENBERK

1. INTRODUCTION

How did members of Proto Oceanic society prepare their food? What methods of cooking did they employ, and how did they process food before cooking or eating it? These are the questions that the present study is concerned with. To a considerable degree, this is a synthesis and systematisation of findings arrived at by other scholars of Austronesian and, more specifically, Oceanic languages; a good deal of what is new here consists in refining earlier reconstructions, primarily in their semantic aspects.

As I see it, the main value of the linguistic evidence that will be presented here is to enable us to learn as much as possible about the ways in which speakers of Proto Oceanic prepared their food. For this reason, I have included here not only those terms whose only or central meaning had to do with food preparation but also those terms that could be used to refer to aspects of food preparation even though that was not their core meaning, as long as they are informative in the relevant respects. The emphasis here is on food preparation; I have practically nothing to say about the various kinds of food that the people may have eaten or about food and drink consumption.

For this study, I have assumed the subgrouping of Oceanic given in the following figure, and the phonemic inventory for Proto Oceanic as reconstructed by Ross (1988).

In revising this paper, I have profited from comments by a number of colleagues on the version presented at the symposium. I am grateful to Ann Chowning for comments on an earlier version and for data on Kove and Sengseng, to John Lynch for information on the languages of Southern Vanuatu, to Jeff Marck for the Proto Nuclear Micronesian and the Proto Trukic reconstructions, to Salome Bugenhagen for data on Mangap-Mbula, to Ruth Sprigg for data on Teop, to Malcolm Ross for the Diodio, Nalik and Tungak data, and, last but not least, to Andrew Pawley for detailed comments on a later version, for providing data on Wayan, and also for encouraging other people to share with me data on the languages they are familiar with.

A recent study of aspects of Proto Oceanic culture – food preparation among them – on the basis of linguistic evidence see Chowning (1991).

A sizeable number of reconstructions of Proto Oceanic terms for food plants can be found in French-Wright (1983). (My thanks to Andrew Pawley for reminding me of French-Wright’s work.)

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3 A sizeable number of reconstructions of Proto Oceanic terms for food plants can be found in French-Wright (1983). (My thanks to Andrew Pawley for reminding me of French-Wright’s work.)
As far as the data are concerned, wherever possible I have relied on reconstructions at various levels (most often Proto Polynesian, Proto North-Central Vanuatu, Proto Micronesian, Proto Malayo-Polynesian and Proto Austronesian) posited by other scholars. Occasionally a direct, attested witness is cited even if there is a sub-Proto Oceanic protoform available; this happens when the meaning of the direct witness is more specific than that posited for the protoform.

The witnesses for a reconstruction are listed in the following way: more diagnostic witnesses are listed before less diagnostic witnesses; otherwise there is a rough geographic progression from West to East. Reconstructions at a level higher than Proto Oceanic are listed last. ‘?POC’ indicates that the reconstruction for Proto Oceanic is problematic. A question mark before the abbreviation of a language name (e.g. ?KLA) indicates that there is some doubt about whether the form in that language is indeed a witness for the reconstruction.

The orthographic or transcription conventions are those of the sources, with one type of exception: where practicable, a backslash (\) is used to separate the part(s) of a witness form that is/are not part of the reconstruction. A backslash usually, though not necessarily, coincides with a morpheme boundary. Other kinds of indication of morpheme boundaries employed in the sources are disregarded here, unless the form is a pre-Proto Oceanic reconstruction.

Phonological indeterminacy in reconstructions is indicated by an ordinary slash (/) and/or parentheses: *w(x/y)z signifies indeterminacy between *wxz and *wyz, and *x(y)z indeterminacy between *xyz and *xz.
In some cases, the evidence presented for a reconstruction is all that is available. In other cases, only some of the available evidence is presented, when additional data would not contribute further details – semantic or formal – to the reconstruction.

Reconstructions of verbs are given without any affixes (such as a transitive suffix) which the verbs may have taken.

A list of the abbreviations of the language names, the primary subgroups of Oceanic the languages belong in, and the sources of the data are given in the Appendix. When there is more than one source of data for a language, the source is cited together with the data.

2. THE RAW AND THE COOKED

Proto Oceanic had terms referring to raw, uncooked food, and to food that has been cooked; in fact, there was more than one term for both categories. There was a general term used to refer to raw food (possibly excluding certain foodstuffs; see (2) below); the same term also referred to unripe foodstuff, such as fruit. The meaning of the term then was something like ‘not ready to be eaten (because unripe or raw)’:

(1) POC *(a)mataq 'not ready to be eaten (because unripe or raw)'; PPN *mata 'raw, unripe', PNCV *mata 'raw, unripe', CAN mata 'raw, green (not ripe), new (unused)', PMC *(a)mata 'raw, uncooked', PTK *(a)mata 'raw, new', PON amas 'raw, uncooked; sober', KIR mata 'undercooked', amata 'not cooked enough, half raw; half cooked food', KWM almera 'uncooked, raw; fertile (as land)', amri/mera 'green, light blue; raw, uncooked' (the initial a in the KWM forms is most likely a later development), ANJ mat 'raw' (cf. emeiliomat 'green'), MNM amatalmata (sg.), amlamata (pl.) 'raw, uncooked', GEL matalmata 'wild, of domesticated animals only, shy, timid', PAN *ma-Hataq 'raw, unripe' (Zorc, this volume)

Proto Oceanic probably also had a term referring specifically to raw meat, fish and shellfish and/or to eating such foods:

(2) POC *goda, also *koda? 'raw (meat, fish, shellfish); 'eat raw meat, fish, or shellfish': PMC *kot'a(a) 'raw food; eat raw food', PTK *koca 'raw food', WOL goshaa possessive classifier for raw food such as eggs, fish, meat, apples, oranges, papayas, bananas, ghosts, goshoalsh 'eat raw (fish, meat, etc.)', TRK wocha, wochee 'eat (fish, meat or uncooked fruit and vegetables)', wochaa 'portion (to eat) of uncooked food or cooked or uncooked meat' (Goodenough & Sugita 1980), KIR ora 'act of eating fish or meat in raw state; eat raw fish or meat', FIJ koda 'to eat raw meat', WAY koda 'eat raw fish or shellfish; eat fish or meat by itself', PPN *qota 'raw', TON 'ota 'raw, uncooked (mostly of meat, fish, shellfish, or eggs)', PEO *qonta 'eat (seafood) raw', GEL onda 'eat raw, destroy a garden, of animals', KWO oda 'eat raw; eat a garden, of a pig', odel/(ode), odel 'eat raw, chew betel without lime', PAN *qe(ŋ)taq (Blust 1972c)

It appears that doublets need to be reconstructed, the Fijian and at least some of the Micronesian evidence pointing to initial k, the other evidence pointing to q.5

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4 Jeff Marck (pers.comm.) reconstructs PTK and PMC *amata 'raw, uncooked'. On the other hand, Jackson (1984) reconstructs PTK *(a)mata 'raw, new'. I have adopted Marck's semantic aspect of the PTK and PMC reconstructions and Jackson's formal aspect of the reconstruction for PTK and, by extension, for PMC.

5 I am grateful to Andrew Pawley for bringing this to my attention.
The term for ‘cooked’ was also used to mean ‘ripe’; the meaning then was ‘ready to be eaten (because ripe or cooked)’:

(3) POC *maosak ‘ready to be eaten (because ripe or cooked)’: LAK maosa ‘cooked, done’, TEO mahaka ‘cooked’, LEN matak ‘ready to be eaten, ripe, cooked, done’, PMC *m(o/a)osa ‘cooked’, PTK *moota ‘cooked’, MRS mat ‘cooked’, BAB moja ‘cooked’, CHE moha ‘ripe, done, fully cooked’, ARE mata ‘ripe, of fruit’, GEL moalmoha (also molmoha?) ‘cooked, of food’, PMP *esak, *ma-esak, *ma-asak ‘cooked, ripe’ (Blust 1980a)

There was another term with a meaning similar to *maosak, but it stressed the good quality of the food:

(4) POC *(ma)noka ‘be in good condition for eating: nicely ripe, well cooked, soft’: PNCV *manoka ‘cooked’, MOT manoga ‘cooked, well done’, MNM no?a ‘ripe, especially when soft; overripe; done, cooked’, KLA monogu ‘ripe’

It is likely that both *maosak and *(ma)noka contained the ‘stativising’ prefix *ma- (cf. Pawley 1972, Ross 1988).

3. COOKING OF FOOD

Oliver (1989:49) says this about traditional cooking in Oceania:

Most cooking was by broiling, by boiling (where there were clay pots, which was not everywhere), and by baking (which was done in earth-pit ovens containing heated stones).

In some places, food is boiled not over fire but by means of hot stones dropped into a wooden bowl that contains the food and some liquid. Food can also be steamed. In baking and roasting, the food is often, though not necessarily, wrapped, usually in leaves, sometimes in bark. Reconstructing terms referring to the methods of food preparation just mentioned is supported – to various degrees – by the evidence available. There are other ways of preparing food used in Oceanic societies, but I have found no evidence permitting reconstruction of terms referring to those techniques.

Oceanic languages typically have a number of terms referring to different ways of cooking food but no generic term ‘to cook’. This strongly suggests that this was also the case in Proto Oceanic.

3.1 BAKING IN STONE OVEN

I use the term ‘stone oven’ rather than ‘earth oven’. The former is more general; the latter is properly used only when the baking process takes place at least partly in the ground (Chowning 1991). Whether or not Proto Oceanic ovens involved excavation of the ground is impossible to tell from the linguistic evidence to hand.

(5) POC *qumun ‘stone oven’: DIO umunla ‘earth oven’, NAL umun ‘earth oven’, TUN imun ‘earth oven’, KWM nllumun (initial n a fossilised article), nakwāllumun ‘earth oven’ (nakwa ‘mouth; voice; inside of, within; will, desire, wish, order, demand’), PPN *qumu ‘earth oven’, PNCV *umu ‘oven’, LAK humu ‘cook on the hearth by covering food with heated stones’, lalhumu ‘hearth, earth oven, in which only hot stones, without earth are
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employed' (la article), PMC *umwu 'earth oven', ARO umu 'round stone oven with loose stones on top', KRU umuí (sg.), um (pl.) 'cook in an earth oven'

A number of Oceanic languages have more than one term for stone ovens that normally refer to different kinds of oven. For example, Roviana has obirae (obirai?) for large ovens, and oputu for small ovens; Motu has amu for ovens covered with leaves and earth, and gura for ovens covered only with leaves; and Arosi has umu and buruburu (the nature of the distinction not specified in Fox 1978). I have found no strong evidence for reconstructing more than one term for 'stone oven' for Proto Oceanic, except possibly for the following:

(6) ?POC *biti 'bake in stone oven; stone oven'; or 'boil by dropping hot stones into liquid'?; CHE biti 'stone oven', GAO biti 'stone/earth oven', BGO biti 'native oven', GEL mbiti 'cook in a native oven', mbitīmbiti 'pool of water heated by red hot stones for cooking', TLO biti(a) 'bake or roast in a stone oven', biti popo 'cook in a wooden bowl heating contents by adding hot stones' (popo 'wooden food bowl'), TOA bii 'stone oven; cook in stone oven; ovenful of food', LAU bi'cook in a stone oven; bambooful of cooked food', biä 'ovenful of food', SAA pii, piipii 'cook with hot stones, stone-boiling', hāu piipii 'cooking stones used in stone-boiling, used in ordeal' (hāu 'rock, stone'), pii oni 'make coconut oil in a wooden bowl' (oni 'coconut cream'), ARE piilnia 'steam food between hot stones', piilnia 'prepare small potatoes, taro or pana together with reke [reko? 'shrub with edible leaves'] in a wooden bowl, kakare, with water; red hot stones are put in the bowl and the whole covered with leaves', ARO bii, biiligii 'cook with hot stones', sinaibii, maraibii 'cook in native fashion, with hot stones', ha'alaibii 'vapour bath, remedy for certain illnesses; to dye, soak in dye and boil, stew' (ha'a- causative prefix), KWO biibii 'shrubs (Evodia sp.), used as medicine, biibii (fana daafiJai) 'leaves bundled and steamed in bamboo, medicinally, put on pained place as poultice' (fana purpose, daafia 'smoke onto, smoke (tr.)')

Although the witnesses for the reconstruction come from two primary subgroups of Oceanic, the languages are geographically close to each other (Santa Ysabel, Nggela, Malaita, San Cristobal), and there is a strong possibility of borrowing. Secondly, even the semantic aspect of the reconstruction is not secure: the term may have referred to stone ovens and baking in ovens, or to boiling by means of hot stones. Given the fact that I have found no evidence for reconstructing another term for stone-boiling, it is perhaps more likely that the proto-term – whether at the Proto Oceanic or a lower level – referred to stone-boiling rather than to stone ovens or baking.

Proto Oceanic may have had two terms that could be used to refer to baking in a stone oven: (7) and (8).

(7) POC *papi 'bake in stone oven'; possibly also *papia 'firewood': ARO hahi 'cook in a native oven, umu; food cooked so', KII vavi 'steam cook with hot stones', FIJ vavi 'bake food in a native oven (lovo)', PMC *fafi(a) 'firewood', PPN *fatie 'firewood', LEN av 'bake, cook in an earth-oven', nalvalan 'baking' (na fossilised article, -an nominaliser)

If *papia is reconstructable for Proto Oceanic, the final a may be a nominaliser; see also (18) below.

Baking in a stone oven is a complex process, and present-day languages usually have a number of terms referring to various aspects of the process and to the implements used. At least the following terms having to do with baking are also reconstructable:
(8) POC *taqon 'close a stone oven (when earth or the last layer of leaves has been placed on top); bake in stone oven'; the basic meaning being 'press down, weigh down with a weight, cover over with the cover weighed down; follow closely' (see discussion below); PPN *taqo 'cook in earth oven', *taqoni6 'press down, weigh down with a weight', TIK tao 'cover over, press down (e.g. cover oven); bake food (from technique of covering earth oven with leaf pads in cooking)' (Firth 1985), SAM tao 'cook (in a stone oven), bake; (of the oven) to cover; put weight on, press down', talaTo 'follow in the tracks of, trail' (Milner 1966), PNCV *taonli 'to cook', PMC *taonlu 'press, bury', GEL tao 'be face down, flat on face; be on oven, of leaves in cooking', mbiti tao 'food long in oven' (= mbiti kombi (kombi 'put food in native oven'; for mbiti see (6) above)), tao 'follow', taonli 'follow, copy', TEO tao 'oven; bake', MAB to 'cook with hot stones', KOV talaTo 'cook in stone oven' (Chowning 1991), WAY tonli 'be pressed, compressed, pushed down by hand or other force' (also as a transitive verb)

Biggs (n.d.) reconstructs two homonyms for Proto Polynesian (see above and footnote 6). However, the hypothesis preferred here is that in Proto Oceanic there was only one item, *taqon, whose basic meaning was something like 'press down, weigh down with a weight, cover over with the cover weighed down; follow closely'. This verb could be used to refer to the process of closing a stone oven (the covering leaves being weighed down with stones, sticks, earth, etc.); the direct object was a noun phrase referring to the oven. By metonymic extension, the verb could also be used to refer to cooking food in an oven (see Firth's comment on the Tikopia form in (8) above); in this case the direct object was most likely a noun phrase referring to the food.

There appear to be two problems with this hypothesis, but neither is without an answer. Firstly, Proto Polynesian exhibits a phonological irregularity: m instead of the expected n. Notice, however, that one would be faced with an n-m irregularity even if one posited two separate etyma rather than just one; compare the Proto Nuclear Micronesian and Proto Polynesian forms above. Furthermore, among the witnesses for reconstructing PPN *taqo (here amended to *taqomi) 'press down, weigh down with a weight' Biggs (n.d.) lists Samoan taomi 'follow closely, press with questions', but the Nggela cognate is taoni 'follow, copy'. The second apparent problem is the fact that in Samoan the perfective form of tao 'cook (in a stone oven), bake' is taoina, but the perfective form of tao '(of oven) cover; put weight on, press down' is taomnia. However, a similar pair of perfective forms is found with tatao 'follow in the tracks of, trail': tataoina and taomnia, the latter having the meaning 'follow closely, follow immediately; press with questions, insist on an answer'. Finally note that an irregular consonant correspondence – of a different sort – is also found in Arosi: ao 'come one after another, as birds settling on a tree', aohi (tr.) 'come to, cluster on (e.g. birds settling one by one on a tree)'.

In summary, there appear to be no serious problems with the hypothesis that Proto Oceanic had the form *taqon 'press down, weigh down with a weight, cover over with the cover weighed down; follow closely', which could be used to refer to the process of closing a stone oven and also to baking in an oven.

(9) POC *pukes 'uncover, open (stone oven; probably other things as well)'; PNCV *vukesli 'open, uncover', PPN *fuke 'open up (esp. an earth oven), uncover', ULW
hukelhuke (intr.) ‘open oven, used in children’s game’, hu’esli ‘open a native oven; turn the pages of a book’, PAN *bu(y)kas ‘expose, unveil’ (Blust 1983-84a)

(10) POC *uru ‘take food and/or hot stones out of stone oven or fire’; more generally ‘collect, gather’; PPN *uru ‘arrange hot stones on bed of earth-oven’, EAS úru ‘take out the stones that have been heated in the ūmu [earth oven]’, TOL ur ‘take food out of, or off the fire’ (Wright 1964), PMC *urū ‘pull, tug, drag, haul’, MOT ur, uru ‘cook in hot ashes’, SAA uru, uruluru ‘gather up in the hand, collect, wipe, take kara mash from nime i kara’ (kara ‘scrape, grate’, nime ‘wooden food bowl’, i genitive), GEL urulvu ‘assemble’, ?GIT tūr ‘remove from stone oven’, ?KOV uru ‘burn food, be burnt (of food)’ (Chowning, pers.comm.), PAN *uruŋ ‘collect, gather’ (Blust 1972c)

(11) POC *kapis ‘tongs; hold st. between two objects, wedge st. (e.g. use tongs, handle st. with tongs)’: TEO kalkpihi ‘tongs’, ZAB kapisli ‘(to) wedge’, kapaisalı mahai taremehana heke ‘eat with chopsticks’ (mahai ‘eat’, taremehana ‘a relative’, heke ‘tree, stick’), ROV kapihihi ‘press or squeeze, as an article between two boards, keep in place; the thing used for this purpose’, most likely also nelpihi, nolpihi ‘tongs, usually a bent or folded piece of cane’, ARO ‘ahi ‘bring together; take up with tongs; fasten’, ‘ahisli ‘take up with tongs; fasten two sticks together’, East ARO al’ahi, kalkahi ‘tongs’, TLO kapi ‘bamboo tongs used to take hot stones out of the oven’, kapitsliia ‘catch between two objects’, GEL ulgavi ‘take with tongs or pincers; tongs, pincers’, avi ‘pick up a stone from the oven with tongs, push away stones of oven’, but also kapi ‘narrow, enclosed; hold st. tight, between arms and side; clench; catch in a trap’, kapisi li ‘enclose in a narrow place, wedge in, clench tight’, PPT *kapi ‘tongs’, YAB kapiŋ ‘clamp made of two pieces of wood tied together (used in sago washing); scissors, pincers, tweezers, clamps used for pressing st. together; crypt. for gandon (‘tweezers (of bamboo)’); clamp, squeeze, carry (hold) st. under the arm; cut st. with scissors’, kapilŋ mo ‘take a roasted taro with bamboo tongs’ (mo ‘taro’), SEN elkap ‘tongs’ (Chowning 1985)

Ross (1988) tentatively reconstructs *kapi-ŋ ‘tongs’ for Proto Huon Gulf (-ŋ reflecting the POC nominaliser *ŋa) and says that it comes from POC *kabit ‘hold (in hand)’, the b having been devoiced by assimilation to the final t. (The suggestion that the terms for ‘tongs’ and ‘hold’ are related had also been made by Capell (1973 [1941]).) However, there are two problems with this hypothesis. Firstly, a term for ‘tongs (etc.)’ is reconstructable for Proto Oceanic, and it has a p, not a b. And secondly, there is a difference in the final consonants, s versus t. Although the possibility that the two terms are somehow ultimately related cannot be excluded, they were distinct from each other already in POC times: *kapis and *kabit.

3.2 ROASTING

I use the term ‘roast’ to refer to cooking food on hot embers or directly in the fire, although the sources of the data use the terms ‘roast’, ‘grill’ and ‘broil’ (in addition to more general terms, such as ‘cook in fire’). Even though more than one term for roasting may be reconstructable for Proto Oceanic, the differences in the glosses for the witnesses most likely reflect differences in the English backgrounds of the authors rather than differences in cooking methods, and I have treated these glosses as mutually equivalent.

(12) POC *tunu ‘roast on embers or in fire’, also ‘burn (tr.)’, and ‘make decorative cicatrices by burning the skin’: PPN *tunu ‘cook on open fire, roast, grill’, PNCV *tunu ‘roast’, NMI cin ‘burn, grill in fire’, MOT tin ‘roast on or over embers’, Veverau dialect tun
'roast on embers, toast', TOL tun (tr.) 'burn, (as a house), cook (of food), scald, iron (of clothes)', tunltuna 'to grill' (Wright 1964), KIR tintin 'grill or roast on open fire', SAA utunu, uuulunu 'burn in the fire, roast flesh on the embers; raise cicatrices on the body by burning', BGO tunu 'a mark, blot, cicatrice caused by burning', WAY tunu '(of cooked food) warmed, reheated', tunuli (tr.), TLO tunula 'to light (lamp or fire); burn the skin to make a raised scar tissue design', CHE tunu 'burn with fire', PET tunltun 'the small tribal marks put on the arms of the natives using the hot end of a very small stick; make such marks', LAK eltuulu 'hot taro', tuulu 'burn (of a bum), be burned', MTU tunula 'bake pottery'; PAN *CuNuH 'roast in/over fire' (Zorc, this volume)

Ross (1988) gives the meaning of POC (and PAN) *tunu as 'bake, burn', but it is unlikely that the POC term referred to baking food, although it may have referred to baking pottery (see Motu tunua above).

(13) POC *mwaRi 'to roast'. Geraghty (1990) reconstructs what he calls 'Proto Eastern Oceanic' *mwaRi 'roasted' on the basis of the following data: PSS *mali, MOT mwalmwari 'smarting; to smart; biting in taste', KIR mwai 'cooked, well done', and EFJ gwai 'browned by exposure to sun'. However, the South-East Solomonic reflexes are irregular; the expected PSS form is **miali. In addition to the data considered by Geraghty, there is also: MNM moalmoari 'cook in fire, roast, bum, singe', GED mazi 'roast, cauterise, toast, bake, parch, bear, bum, incinerate, set fire to, ignite, light (a cigar)'.

When food was roasted, instead of simply being placed in the fire, it may have been skewered. The terms referring to skewering and skewers were also used to refer to testing food by pricking to see whether it was done.

(14) POC *sukit 'pierce, prick (among other things, to check whether food (especially tubers) is done), to skewer; to poke'; *susuk 'anything used to pierce, prick; a skewer': PPN *suki 'pierce, spit; stabbing pain', GIT zuzu 'sharpened stick used like cooking fork', SEN suk 'thrust into', elsuk 'digging stick' (Chowning 1985), GEL suki 'to prick; lance a boil; vaccinate, inject, bleed; sew; plug a small hole; pole a canoe', susulhu 'hole in septum in nose; nose stick; strengthening sticks through thatch of house ridge' (ihu 'nose'), ARO suki 'poke out, poke through', sul.suk 'poke fruit off a tree with a pole', FIJ cuk, cuki'ta 'to root, dig up or loosen the ground with a stick, dig the surface only', SAA sulu, sul.sulu 'to prick, pierce, impale, stake, sew', sul.suli 'to prick, set up, fix firmly, get upright in the ground', TOL uk, uk.uk 'to thread, as beads, tabu [native shell money], etc.', (Wright 1964), PAN *su'kik 'pierce' (Blust 1972c), PMP *cukuk, *sukuk 'skewer' (Blust 1983-84a)

3.3 Boiling, Steaming

Two items are reconstructable for Proto Oceanic with the meaning 'to boil'. The problem is that the sources of data do not usually distinguish between boiling and steaming, both of which are practised in Oceania, 'boil' being the usual gloss. The difference between boiling and steaming lies in the amount of liquid used. For boiling, the food is (more or less) entirely covered with the liquid; for steaming, only a small amount of liquid is used. If Proto Oceanic did have a lexical distinction between the two processes, there is some evidence, albeit weak,
that the term for 'to boil' was *nasu and that the one for 'to steam' was *napu. It is also conceivable that of the two terms *nasu was unmarked and could be used to refer to both types of process.

(15) POC *nasu 'to boil (including steaming?)': MTU nadula 'cook by boiling', nañadu 'cook (general term)', LAL nadu 'feast; cook', GIT nalnazu 'cook in hot water', TEO nahu 'cook; pot', PET nös 'cook by boiling', PAN *nasuk or *Nasu 'cook by boiling' (Blust 1980a), *na+suk, *Nasu 'cook by boiling' (Zorc, this volume)

(16) POC *napu 'to steam?; to boil?': FIJ navu 'straighten a stick, as for a spear, by heating it in the fire and then putting a heavy stone on it; cook in steam', KRU nouli (sg.), nurru (du.), nau (pl.) 'cook, boil in a saucepan', GED nai 'cook, boil', MAB noi 'boil in pot'

(17) POC *kuron 'clay pot' (Ross 1988; see also Pawley & Green 1973)

When boiling or steaming food, the container may be covered with a lid, such as a coconut shell (Chowning, pers.comm.), or its mouth may be closed with a plug, usually made of leaves.

(18) POC *tutup, *tup 'to cover', *tutupa, *tupa 'a cover, lid': LNU tutuh, tutuha 'a cover, lid, leaf used as a lid', FIJ tuvi 'to cover, conceal', i tuvi 'leaves for covering food', tutuvli 'wrap oneself up', TOL tuba 'to cover, as a pot, a canoe, etc.', tubaltuba 'lid or cover' (Wright 1964), ZAB tutulmuni 'to cover (with sand, dirt, the hand), fill in (a hole), shovel, shut, close (a hole, mouth), shut (up)’, PAN *tutub, *tutup 'to cover' (Blust 1986)

The Tolai form and some of the Fijian forms suggest POC *tup besides *tutup, and *tupa besides *tutupa. This kind of haplology in Oceanic has been discussed by Blust (1977b), who attributes it to a 'family-wide drift to disyllabism' (1977b:32). Blust leaves open the question of whether the haplology existed already in Proto Oceanic or whether it developed independently in various languages in post-Proto Oceanic times. Since in some cases (see (51) below) only a haplologised form is reconstructable on the basis of the Oceanic evidence, I have opted for positing both full and haplologised forms for Proto Oceanic where both types of witness are found. This decision is motivated by a desire for consistency, not by a conviction that the haplologised forms existed in Proto Oceanic.

(19) POC *jojO) 'to plug, caulk, bung; a plug, bung': GIT zozon 'to plug, to stopper', GED dod 'a cork, stopper made out of leaves rolled together to stop the hole in the coconut shell water container', GEL ndondonglaga, ndondonglana 'fitted tight, as a cork', FIJ soglotga 'shut up, close, cork up', i soglo 'shutter, door, lid', MNM rozoI) 'plug a hole in st.; plug st. (e.g. a bottle)', rozoI)la 'a plug, anything used as a plug', PAN *sezseg, *suzsuz 'cork, stopper, plug' (Blust 1986), *seg+seg 'cork, stopper, plug' (Zorc, this volume)

Although the Fijian forms exhibit loss of the first syllable, this is most likely due to a process other than the haplology discussed by Blust (see discussion of (18) above).

Note that if cooking pots were to be plugged with leaves, one would expect such pots to have relatively narrow mouths.
3.4 WARMING UP, REHEATING FOOD

(20) POC *raraŋ, *raŋ ‘warm up, reheat (esp. food); warm oneself by fire’: MNM raraŋ ‘warm up (food that has become cold), warm up again’, FIJ rara, raraŋla ‘warm oneself at a fire; of pain, smart slightly’, vakararaŋla ‘to warm food again by placing it near a fire; sear up banana leaves around food’ (vaka-causative prefix), PMC *rangaŋlī ‘warm oneself, as by fire’, PPN *lala ‘heat over fire, grill, smoke’, but also *raŋ ‘toast, grill, heat over fire’, PNCV *raŋlī, *raŋla ‘roast on coals’, GEL raraŋla ‘heat; scorching hot; bright, glorious; glory’, raraŋngasi ‘dry up by heat’, raraŋngasia ‘dried up, baked by sun’, SAA *raŋ, raraŋrara ‘be in the sunlight, be hot, pungent’, raraŋhi ‘to heat in the fire’, raraŋlī ‘affect a person magically’, PAN *d2al(y)+d2alŋ ‘heat s.th. or warm oneself by fire’ (Zorc, this volume)

3.5 SINGING IN PREPARATION FOR COOKING

(21) POC *sunu ‘singe’: PPN *sunu ‘singed, cooked, burnt’, LNU sun ‘singe’, LAK sululu, siliulu, sili/lu ‘singe’ (suluulu said to be by confusion with siliulu), KLA sulu, sulululu ‘to cook’

3.6 WRAPPING FOOD FOR COOKING

At least two terms are reconstructable for wrapping food for cooking (baking or roasting), and it may be that they referred to different ways of wrapping food. Firth (1957) gives four terms for different ways of wrapping food in Tikopia, one of which appears in (23).

(22) POC *apu ‘wrap food (in a certain way?) for cooking’, more generally ‘to wrap, pack’: LAK avu ‘wrap up, bandage’, avulkalebulu ‘wrap up fish for cooking so that pieces of fish are separated by a layer of leaves’ (e-kalebu ‘fish sp.: leatherjacket’), SAA ahu, ahu ‘wrap (up), ahu lalemo ‘wrap up yam pudding without coconut cream’ (lalemo ‘without coconut cream’), MNM apu ‘roast in fire’, FIJ cavu ‘adorned, highly ornamented’. In some Cristobal-Malaitan languages there is an unexplained initial glottal stop: TOA ‘afu ‘wrap st. (e.g. wrap fish (not pork) in a leaf for cooking)’, KWO ‘afu ‘parcel, bundle; full(y), complete’, afula ‘wrap, bundle up’, afuḷo ‘a whole fish cooked in a single parcel’ (lo’umia ‘fold up’), LAU ‘afu ‘wrap up; make a cigarette’, ARE ahu ‘wrap, cover’, ARO ahu ‘wrap up’, inlu ‘inlu ‘inlaulu (tr.), also BRO ginlalu ‘wrap up in leaves’,9 East ARO afululu ‘broil on the embers in a leaf’. (It is conceivable that the presence of the glottal stop in the reflexes of (22) is due to contamination from the reflex of (23) in Proto Cristobal-Malaitan.)

(23) POC *kopu ‘wrap food (in a certain way?) for cooking’, more generally ‘to bundle, wrap’: PPN *kofu ‘wrap up; covering; parcel’, TIK kofu ‘a way of wrapping food in leaves: leaf drawn together at the top and tied with a separate strip of hibiscus or the like’ (Firth 1957), ‘(to) package in leaf or (modern) cloth, tied at top; leaf/cloth package usually containing soft food’ (Firth 1985), SAM ofu classifying particle used with numerals in reference to items of food wrapped in leaves when cooked...excluding small fish; ‘garment, dress, clothes; food done up in small bundle of leaves (for cooking in a stone oven or for convenience); wear, be dressed’ (Milner 1966), FIJ kofu ‘tie up vakalolo [k.o. pudding] or fish in banana leaves’, WAY kovu ‘covered, wrapped’, kovulti ‘cover or wrap s.th.’, LAK

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9 The extra in in the ARO and the BRO forms probably continues the POC infix *-in-.
**THE RAW AND THE COOKED: PROTO OCEANIC TERMS FOR FOOD PREPARATION**

**3.7 POUNDING FOOD**

Pounded foods are widespread in Oceania (Yen 1975). In Pidgin and in English, they are referred to as ‘puddings’ (although not all puddings require pounding). The usual main ingredient is tubers (taro, yam), cooked and pounded, mashed into a paste together with other ingredients, such as coconut cream or nuts, and then usually recooked.

(24) **POC** *tutuk, *tuk ‘pound, mash by pounding, hammer, crack by hammering’: MNM tutu ‘mash, crush’, TLO tutuk’u ‘pound with a stick-like object to soften, mash or crush (food, nuts, lime)’, PNCV *tukli, tutukli ‘pound’, GEL tutu ‘pound, crush, as yams in tambili mortar; pudding made from pounded yams, etc.’, tutuk’ata ‘to ram’, tutuklu ‘pierce, stab, holding a weapon’, PMC *tuklu ‘pound or mash with pestle’, FIJ tuki, tukia ‘strike at, knock at, hammer, pinch’, tutuivatu ‘variety of pudding of roasted breadfruit beaten quickly under water with a stone’ (vatu ‘stone, rock’), TOL tut ‘to hammer, strike with a stone, pound up’, tutututuk ‘a hammer’ (Wright 1964), BAB tuki ‘crack nuts with a stone and remove shells; kick (with foot), punch (with hand)’, ROV tutu ‘large stick used for mixing native puddings; small pestle used for mixing heta [betal nut], etc., in a kodere [mortar for betel-nut chewing]’, CHE tutu ‘hit, pound, hammer, as in pounding nuts’, tūğle ‘to hammer, pound, esp. pound food in a bowl with a mallet’, thūğle ‘lump of mashed food made by pounding ingredients in a bowl’, GIT tutu ‘pound, beat, knock’, KRU tit (sg.), tut (pl.) ‘crush (strike a blow with a hammer or like instrument and resulting in crushing someone or something)’, MAB tut ‘pound, hit’, LNU tukluwey ‘break open (e.g. coconut)’, PAN *tuqtuq ‘to hammer, pound, crush’ (Blust 1986)

(25) ?**POC** *kumete ‘large wooden bowl (used as a mortar in pounding, mashing food and/or in stone-boiling?)’: MOT wumeto ‘wooden bowl used for stone-boiling’, FIJ kumete ‘wooden bowl’, PPN *kumete ‘wooden bowl’, KAP gumade ‘large wooden bowl used for pounding food’, KIR kumete ‘kind of wooden mortar trough; hollow, empty, concave; thin, ravenous (hungry)’ (Harrison (1989) identifies KIR kumete as a Polynesian loanword.)

**4. PRESERVATION OF FOOD**

There are two main methods used in Oceania to preserve food for future use (Yen 1975). One is drying, either in the sun or above fire (the latter may involve smoking the food); the other is fermentation. Ways of drying certain foods are found throughout Oceania, and a term for drying is reconstructable for Proto Oceanic:

(26) **POC** *tapa ‘to dry food by heat in order to preserve it; smoke food’: ROV tava ‘cook or dry by smoking or heating, as fish, copra, etc.’, ZAB tava koilo ‘make copra in a hot air dryer’ (koilo ‘coconut’), PAN *(t/T)apa ‘to smoke, dry by smoking’ (Blust 1972a), *CapaH ‘smoke fish or jerk meat’ (Zorc, this volume)

Fermentation of food is geographically much more restricted. Yen (1975) says that at present this practice is almost confined to Polynesia and Micronesia and that in Melanesia it appears to be practised only in Santa Cruz. Yen ascribes the presence of fermentation in

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10 I am grateful to Ross Clark for bringing Harrison’s study to my attention.
Santa Cruz to Polynesian influence. However, David Walsh has informed me that fermentation is practised also in some areas in Vanuatu; see also the Namakir form mada below. Terms having to do with fermentation have been reconstructed for Proto Nuclear Micronesian and for Proto Polynesian. Although the PMC and the PPN forms continue a POC term, the POC term most likely did not refer to fermentation or to fermented foods. Rather, its meaning was ‘ripe’, perhaps ‘very ripe, overripe’, and it was applied specifically to breadfruit and bananas, both of which become soft and mushy when overripe. Breadfruit and bananas are also the two foodstuffs which today are most commonly preserved by fermentation (Yen 1975).

(27) POC *madrar ‘ripe, overripe (of breadfruit and bananas)’: PMC *mat’a ‘ripe, overripe, fermented’, WOL mmash ‘(to be) ripe (e.g. banana), fermented, soft, wet’, TRK mach ‘(be) very ripe, rotten, stink’, ałmmach ‘dish made from meyíchéén or neeyátin varieties of breadfruit’ (Goodenough & Sugita 1980), ‘pudding of baked very ripe mei chôn breadfruit, sometimes with coconut cream’ (Elbert 1947). MRS mmn ‘very ripe, overripe, of breadfruit only’, mełmed ‘overripe, of breadfruit with seeds; overripe breadfruit’, TOL mădăr ‘ripe, overripe’ (Lanyon-Orgill 1960), GEL manda ‘ripe’, mandarli overripe, as a banana’, ARO mada ‘be ripe’, madarli ‘grow ripe from’, ha’mada ‘ripen by hanging up in house, as bananas’ (ha’a- causative prefix), NAM mada ‘preserved breadfruit, manioc, etc.’, FIJ madrali ‘Fijian bread, buried in the ground for months, in a hole called davuke’, PPN *mara ‘food fermented to preserve or enhance taste’, MFA mara ‘breadfruit, taro or banana preserved by fermenting in a pit’, ?GRC mado ‘cooked, ripe’, PAN *mada ‘(banana) ripe’ (Ross 1988)

Ross (1988) posits POC *madra (and PAN *mada) ‘(banana) ripe’, but the evidence suggests that the POC term was applicable to breadfruit as well.

One of the participants at the symposium pointed out that food fermentation is practised primarily in those areas where sago is not available as a staple. Sago can be stored in a processed or unprocessed state for lengthy periods of time (Ruddle et al. 1978). Assuming that sago was available as a foodstuff in Proto Oceanic times (Dutton, this volume), the nearly complementary distribution of sago as a staple and fermented foodstuff suggests that the presence of fermentation in Micronesia and in Polynesia is due to independent developments.

5. OTHER ASPECTS OF FOOD PREPARATION

Preparation of food typically involves not just the cooking or preservation itself, but also, depending on the kind of food, a variety of ancillary processes, such as husking, grating, scraping, peeling, etc.

5.1 HUSKING, BREAKING, CRACKING

(28) POC *kojom ‘to husk (coconuts); husking stick; digging stick’ : MNM ?ozom ‘to husk (coconuts)’, LNU kućum ‘short pointed stake stuck in the ground, used for husking coconuts’, PNCV *kosomli ‘husk coconut’, MOT goso (Mali go dialect gosomla) ‘to job a spike, thence to husk a coconut with a pointed stick’, ilgoso ‘the stick used to husk with’, ANJ alyem ‘to husk (coconuts)’, PMC *koso ‘husk with a stick’, PPN *koho ‘digging stick’, TOK koho ‘coconut husking stake’, HAW ő ‘any piercing instrument, fork, pin,
skewer, harpoon, sharp-pointed stick, pitchfork, fishing spear, coconut husker; sharp darting body pain; pierce, vaccinate, stab, etc., KWO *oto ‘hit and perforate; put stick in ground, tether pig to it; jab, stick, throw (out), ‘otomlia ‘to spear; call up kinsmen for a fight’

Ross (1988) gives the meaning of *kojom as ‘pierce, husk’, but the (primary) verbal meaning was most likely ‘to husk’.

(29) POC *joka ‘pierce, husk (coconuts)’: GEL hoka ‘to bore’, FIJ coka ‘pierce, usually with a spear’, PPN *hoka ‘husk coconuts on a pointed stake’, also *soka ‘pierce’, TOL oka, oko ‘to poke, probe’, okaling ‘to pick (as teeth)’ (Wright 1964), LEN itik ‘stab, spear, pierce, stick into’

(30) POC *potak ‘crack st. open, split st. open (such as nuts, coconuts)’: MNM ota? ‘crack st. open (e.g. coconuts, canarium nuts)’, ANJ alhtaklwai ‘split’, MOT wota ‘knock, break by knocking’, GEL voti ‘break open (as a coconut), split, split up’, SAA hoa ‘make an incision in; remove and separate; withdraw, leave’, PMP *beTa(k) ‘split, cleave’ (Dempwolff 1938)

(31) POC *poro ‘break st., smash st. (of brittle things; possibly also applied to nuts)’: FIJ voro, vorolta, vorolka ‘break, smash (of brittle things)’, MAB polpooro ‘crush (by hand)’, SAA horo, horoli (intr.), horoli (tr.) ‘beat, strike, kill; win (in children’s games)’

5.2 GRATING, SCRAPING

(32) POC *asa ‘grate (e.g. tubers), grind; sharpen by grating, grinding’; *i asa ‘grater; anything used to grate, grind’; TEO aha ‘grate (e.g. tapioca); scrub (e.g. floor)’, iaha ‘grater’, FIJ yaca, yacā ‘grate, grind, file; rub eyes with cika [inflammation of the eye, conjunctivitis]’, i yaca ‘grater, grindstone’, ROV asalā ‘grind, as an axe, if very blunt; grate, like luzu [sweet yam or potato], taro, etc.’, VNU asa ‘grate’, inasā umari ‘pudding made from grated cassava’ (in- nominaliser, umari ‘cassava’), CHE jaha, also zaha ‘sharpen (as a knife or axe)’; jaha also ‘grate food, such as tapioca or sweet potato’, MNM ara ‘grate, sharpen, rub’, SAA satala’i ‘chafe, rub’, LNU as ‘scratch’, PMC *asa sharpen, put an edge on s.th.’

(33) POC *karis ‘scrape (tubers, coconuts)’: TLO karisliia (kari kari) ‘peel with a knife, shell, etc.’, also garila ‘scrape; chafe, rub’, ARO karikari ‘scrape off small roots with waro shell’, GEL karis ‘scrape off (as dirt, blood from a cut), scrape out white of coconut, scale a fish’, karisli ‘peel off skin of stem of plant or stick; circumcise’, WAY ikari ‘grater’, FIJ kari, kari ‘scrape (chiefly of coconut)’, KOR karisli ‘scrape one’s skin’ (Chowning pers.comm.), PMC *kari ‘scratch’

(34) POC *karas ‘scrape (skin of tubers)’: PNS karasli ‘peel (sweet potato, etc.)’, CHE kakrasli ‘scrape off potato or taro skin, using a shell’, ARO krasli ‘scrape, bruise, take off skin’, KWO galala ‘peel skin off (a vegetable, etc.)’, galasli ‘peel a raw vegetable’, TOA garasli ‘scrape taro, sweet potato, etc. to remove the dirt after pulling it out of the ground’, SAA kara ‘scrape, grate’, kara uhi ‘grate yams with a cockle shell’ (uhi ‘yam’)

(35) POC *ko(r)li(s) ‘scrape (esp. coconuts), grate (esp. coconuts)’: TOA kori ‘scrape (e.g. coconuts)’, TLO kori/a ‘scrape or grate coconut’, MNM *oril ‘scrape (coconuts),
?ori?ori 'pearl shell, traditionally used to scrape coconuts; coconut grater/scaper', KRU qri (sg.), quor (pl.) 'scrape a coconut', qoqri 'coconut scaper', GEL goli 'scrape coconut with a tuc, fresh water shell Batissa, also gori 'shave the head'?, ARO 'ori, 'orisli 'to scrape', PNCV *ko(r)i 'scrape, shred coconut', PNI *kori 'scrape', FIJ koi 'scrape (breadfruit)' (Geraghty 1990), ROT 'oi 'scrape or grate; to plane', WFU kola 'to husk coconuts', PAL kesii (coconut or taro) is to be grated or scraped, mengés 'grate or scrape (usually, coconut, and sometimes, taro)'

For the final s in *ko(r)i(s) see Arosi 'orisi and the discussion further below.

(36) POC *ko(r)i as 'scrape out (coconut meat); dregs of strained coconut scrapings': ARO 'ora 'scrape with a shell', 'orasli 'dregs of strained coconut scrapings', MOT gor 'to rasp, scrape; of a pig, after being killed not shaved, only scraped; scrape out the meat of vusa, young coconut, with the bracts, or top of shell', goras 'scrape out, grate, the hard meat of coconut with vin-gar [cockle shell]', PMC *kora 'scrape (incl. coconuts)', FIJ kora 'refuse of scraped coconut', SAA korasi 'scratch about (as a rat)', korasue dunge 'rake out a fire' (dunge 'fire'), GEL gola 'scrape, plane', golali 'scrape, plane; chafe, bruise, rub skin off; sharpen to a point, as an arrow or pencil; pudding made from pana, yam; make pudding; sting'

(37) POC *(k/g)asi 'scrape out/off, strip off, peel off (takes as its direct object a noun phrase referring to the stuff scraped off, e.g. the skin of tubers)'; also 'bivalve sp., used in scraping, etc.': LAK kasi 'scratch', lalkasi 'broken coconut shell; mussel or clam; mussel shell used as knife', PPN *kasi 'bivalve shellfish (Asaphidae)', TIK kasi 'bivalve mollusc (Asaphis violascens Forskal), possibly other related bivalves also; shell traditionally used as cutting or scraping implement,...as food scraper for coconut, breadfruit' (Firth 1985), FIJ qasi 'strip off the shell or bark from a tree, or dry leaves from sugarcane', qasilka 'the shell or outside, the fibrous roots of plants such as yams, bananas (but not yaqona [kava])', and also kasi 'of trees, shed bark, as the dry bark of banana trees or the skin of moci [shrimp, very small prawn]; pluck, of banana leaves', note also kasi 'small roots of yaqona [kava] or balabala [tree fern sp.'], KLA gesi, gisilgesi 'to peel, to husk'

(38) POC *(r/R)asik 'grate, scrape (tubers, coconuts); scratch': MNM rasi? 'grate (e.g. cassava)', ZAB rahi 'grate, scratch (coconut, cassava)', CHE rahi, girahi 'grate or scrape off (e.g. coconut or bark for making medicine)', MOT ras 'rub, scrape, scratch', rasa 'scrape, scratch, rub, with straight motions backwards and forwards; so, sharpen by rubbing backwards and forwards on a stone', ?KII rosi 'grate'

(39) POC *su(r/R)i 'scrape (e.g. tubers)'; shave?': TOA sulsuli 'scrape, scrub (e.g. sweet potatoes)', PNCV *suri, *surlati 'shave, scrape', SAA suru, sulsuru, surulmi 'scrape with a flint or shell or glass; to plane'

There are several items reconstructable for Proto Oceanic with the meanings 'scrape, grate' that contain the consonants k, r/R and s, in that order: *karis, *karas, *ko(r/R)i(s) and *ko(r/R)as (cf. also *(k/g)asi, *(r/R)asik and *su(r/R)i). Blust (1988a) points out that a large number of lexical items meaning something like 'rub, scrape, scratch' are reconstructable for Proto Austronesian, all of which begin with a velar stop. Blust refers to this as 'initial consonant symbolism'. In the case of the POC items the symbolism is not restricted to just initial position; one finds what Blust calls (with respect to other PAN etyma) 'Gestalt symbolism': a recurrent configuration of sounds associated with similar meanings. (In fact, very much the same Gestalt symbolism is found also with the PAN forms meaning 'rub,
scrape, scratch' mentioned by Blust. Compare also English scrape, scratch, scrub.) Besides sound symbolism, it is also possible that in POC or perhaps in pre-POC times there was some kind of derivational relation among at least some of the forms; note that apparently unlike the other three terms, *ko(r/R)as took as its direct object a noun phrase referring to the stuff scraped off (e.g. coconut meat), rather than a noun phrase referring to the object undergoing the scraping (e.g. a coconut). (Concerning *karas and *(r/R)asik see also the discussion in section 6.)

The multiplicity of forms having to do with scraping, etc. is not restricted to Proto Oceanic (or Proto Austronesian), and thus cannot be simply attributed to misreconstruction. A number of present-day languages from which data are cited in (33)-(36) have more than one term from that set: TLO (33, 35), SAA (34, 36), MOT (33 or 34, 36), GEL, ARO, FIJ (all having 33, 35 and 36).

(40) POC *qunap ‘fish scale; turtle shell; to scale fish’: MTU unahlia ‘scale a fish’, una ‘fish scale’, ARO unahlī ‘remove shell from turtle, scale a fish’, unaluna ‘scales, tortoise shell plates’, PPN *qunafī12 ‘fish scale, turtle shell; scale fish’, TOK unaflī ‘scale (of fish), (to) scale’, HAW unaflī ‘scales of fish; scaly; to scale’, TON uno ‘scales (of fish), shell (of turtle)’, PMP *qunap ‘scales’ (Dempwolff 1938)

5.3 PEELING

(41) POC *kulit ‘to peel, remove skin of st., to bark (a tree); (the) skin’: MNM ?ulit ‘peel, remove the skin, covering (e.g. of breadfruit seeds and canarium nuts)’, TOL kulit (tr.) ‘peel off, to bark, to skin’ (Wright 1964), FIJ kuli ‘(the) skin, bark, peel’, kulita ‘peel cooked taro or food cooked in water; strip off the skin or bark of a tree’, GEL guli, gulliti ‘to skin, bark, as one’s skin or a tree; take the scab off a sore’, guli also ‘pull off anything sticking, as a stamp or plaster’, ARO ‘uri (tr.) ‘to peel’, LAK kulisi ‘have a scrape, as the skin; remove the skin of a tree or fruit’, sulkuli ‘give taro a rough preliminary peeling’, KRU quli ‘skin’, LNU kulīhi ‘(the) bark’, skin (of crocodile)’, PMC *kuli ‘(the) skin, bark, hide’

(42) POC *sisi ‘peel off, pare, strip, remove skin, covering, bark, lift off (most likely referring to peeling, etc., in long strips) (the direct object is a noun phrase referring to the covering, skin, etc.); pry open (e.g. shellfish); draw lips back (when smiling, grinning), thus baring the teeth’: PPN *hisi ‘peel off in long strips’, also *sisi ‘scoop out, gouge out (as meat from a coconut)’, TON hihi ‘scoop out, gouge out; (of clams, vāsua) open with a knife and detach the flesh’), EUV hihi ‘shellfish spp.: Janthiniidae and Nerinidae; slice horizontally’, MNM sisī? ‘to peel, pare (e.g. sweet potatoes, bananas), bark (a tree)’, GED sisi ‘pull up (off), peel off, husk, take off (one’s clothes), draw up (the lips when smiling)’, KOV sisi ‘peel off bark or skin, strip leaves from frond, remove the midrib of a leaf’ (Chowning, pers.comm.), SEN sis ‘skin a pig’ (Chowning, pers.comm.), CHE hihi ‘pry apart, separate by prying, pry open’, SAA sisi ‘roll back as a fold; grin like a dog; lay bare the teeth’, GEL hihi ‘scoop out the white flesh of a coconut; push out, prise out; open (as a tin)’), BAB sisīto ‘scrape off small hairs, etc. (of taro)’, MOT sis ‘rub or knock off skin or bark, flay’

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12 Biggs (n.d.) reconstructs PPN *quna ‘fish scale’, but the evidence points to *qunafī ‘fish scale, turtle shell; scale fish’.

(43) POC *supi ‘to peel, pare’: GED supi ‘pare, peel (cut off thin slices)’, LAK suvi, sulsvi ‘peel taro’, ARO su, suhi ‘peel, pare’, TLO suhila ‘husk coconuts’, FIJ suvi, suvila ‘cut in pieces, chiefly of yams and breadfruit, generally lengthwise, but also of other food’

(44) POC *pili ‘peel by hand (fruit, cooked food)’; MAB piili ‘to husk (like corn, pitpit)’, KRU pil (pl., du.), pli (sg.) ‘peel skin off a cooked vegetable; peel skin off by hand’, MOT wil ‘peel, turning the fruit over in peeling’, KWM alveri ‘peel (as a hardboiled egg), skin (as a banana or animal), husk’ (the KWM form may belong under (45) instead)

(45) ?POC *waru ‘peel?; scrape?’: PPN *waru ‘scrape’, TOK valu ‘implement used for scraping or scratching (i.e. spokeshake, breadfruit skin peeler made from a half coconut shell, etc.); scratch; (of a coconut) grate, scrape; (of a breadfruit) peel or skin (by scraping off the skin)’, GRC waru ‘to peel (as banana, tubers)’, FIJ wadrulc ‘to strip all the leaves and bark off a twig with one stroke of the hand; to clear the nose of mucus between thumb and index finger’, WAY waru ‘strip skin of certain plants’, KWM alveri ‘peel (as a hardboiled egg), skin (as a banana or animal), husk’ (the KWM form may belong under (44) instead), ?MN verti ‘scrape (breadfruit, taro, etc.) in preparation for cooking’

(46) POC *sari ‘pare?; break off?; cut off?’: GED sazi ‘shave, pare’, sazilen kes ‘paring knife’ (kes ‘spoon made from coconut shell or k.o. snail shell’), MTU dari ‘husk a coconut with the teeth, tear clothes with the fingers’, KOV sali ‘to cut thatch’ (Chowning, pers.comm.), GEL hari ‘cut with a knife, slide along, slice off (as in making a canoe)’, TOL ari ‘break or cut off coconuts, etc., by the bunch’ (Wright 1964), PMC *saru ‘peel, slice; knife’

(47) ?POC *pelo?, *pole? ‘peel (e.g. foodstuff)’: LAK velo ‘remove the outer covering of a food to get to the edible part’, lavelolla ‘the peeling or uncovering of a foodstuff’, PPN *fo(lr)e ‘peel or strip (as skin or bark)’, *malsole ‘peeled’

5.4 PLUCKING

(48) POC *(p/b)uti, also *bubut ‘pluck (feathers, hair (not fruit)); pull (weeds)’: TOL vut ‘to weed; pluck as feathers of a fowl, ivut ‘pluck off as feathers of a fowl, thatch off a house’ (Wright 1964), TLO vutila ‘pull out, pluck (out) (e.g. feathers)’, FIJ vutila ‘pluck hair or feathers; pull up weeds’, vuti ‘hair of the body, small feathers or down of birds’, PPN *futi ‘pull up, out; pluck’, TOK futi ‘(of hair, weeds, etc.) pull off (or out), (of fishing line while fishing) pull in, (of feathers) pluck’, SEN put ‘pluck’ (Chowning, pers.comm.), MTU butu ‘pull up grass, pull out hair or feathers’, CHE bubuthu ‘pluck feathers’, PAN *butut, *puTik ‘pluck, pull out’ (Blust 1972c). (The form *bubut is reconstructed on the basis of Cheke Holo bubuthu and PAN *butut.)

5.5 WRINGING, SQUEEZING

(49) POC *pipik ‘press, squeeze st. (e.g. in order to extract liquid)’: MNM pipi? ‘squeeze in order to extract the contents (e.g. lemon, grated coconut)’, GED pipi ‘squeeze (out),

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13 The POC form bears a remarkable phonological resemblance to its English counterpart: *pili and peel. However, given the fact that the normal Pidgin equivalent is skinim, it is highly unlikely that the forms cited in (44) are not true Oceanic words.

14 I am grateful to John Lynch for bringing the Kwamera form to my attention.
express, crush, pinch, strangle, compress, cramp, milk (cow, etc.), PNG *vivi ‘squeeze’, ARO *bibibibi ‘crush, squeeze, crowd’, PMP *pitpit ‘to clamp, jam, pinch’ (Dempwolff 1938)

(50) POC *pisak ‘squeeze (incl. grated coconut)’: MNM pisaʔ ‘squeeze (e.g. grated coconut)’, GIT pisa ‘squeeze’, MAB piiizi ‘wring, squeeze’, LNU pichey, polpichey ‘squeeze (e.g. sago in water)’

(51) POC *poji ‘squeeze, wring (e.g. coconuts to extract the cream)’: CHE poji ‘squeeze, wring liquid, as in making coconut milk or medicine’ (also *poji; see (53)), TEO posi ‘wring, squeeze’, ilposi ‘coconut strainer’, GEL pondi ‘squeeze, as in shaking hands’, FIJ voci ‘to skin or peel anything with a soft, flexible skin (e.g. cooked banana or taro)’, PPN *fohi ‘remove skin, peel’, PAN *pespes, *mesmes ‘squeeze’ (Blust 1983-84a)

(52) POC *losi ‘wring’: TOA losi ‘wring st. in order to extract liquid (e.g. clothes, grated coconut)’, SAA losi, loilosi ‘squeeze, strain out coconut cream from hero [scraped coconut] with unu [the fibrous spathe of a coconut frond, used for straining cream from grated coconuts; see (66)]’, ROV liolah, liolahia ‘wring out, as a wet garment’, GEL loilosi, also leileis ‘sponge’, ARO rosí ‘wring, twist, squeeze, as coconut fibre in straining coconut scrapings’, FIJ lose ‘squeeze, wring, chiefly of the yaqona [kava] preparation’

(53) POC *peRes ‘squeeze out, wring out (liquid)’: PNI *poros(i) ‘squeeze’, GIT poro ‘wring’, LAK volo ‘work sago flour, squeeze the water out’, MOT woro ‘squeeze, wring out juice of herbs, liquor of fruits, over food, and things prepared for charms; add coconut sauce to loko [pudding of grated yam]’, KRU furasli ‘wring, squeeze (e.g. in the preparation of coconut cream)’, KOV poho ‘squeeze, wring out; add coconut cream to food; make sago’ (Chowning, pers.comm.), CHE froli ‘squeeze or wring liquid as in making milk or medicine’ (also poji; see (51)), PAN *peRes ‘squeeze out’ (Blust 1972c)

(54) POC *pirik ‘wring out (liquid, coconut cream)’: ZAB pirikli ‘wring, squeeze (e.g. the milk from coconut)’, CHE purikli ‘hold and twist, wring, as in squeezing water out of a sponge’, LAK viri ‘constrict (as a python), be mixed up or twisted (of a child’s speech), twist, wind up, wind around’, MOT vir ‘twist, wring, squeeze with a twist’, galvir ‘squeeze, wring, with the hands’, ARO biibiri, biibiri ‘strain through coconut fibre, fall through such fibre (of coconut milk)’, biririgi ‘squeeze coconut milk through fibre’, TOL vir, also pir ‘to plait (as a basket)’ (Wright 1964), ?PMC *fira(k) ‘plait, braid, weave’

It is not possible to determine fully what the distinctions were among the various terms for extracting liquid, but a number of contrasts can be postulated. Items (49)-(52) took as their direct object a noun phrase referring to the object out of which liquid is extracted, whereas (53) and (54) took as their direct object a noun phrase referring to the liquid extracted. Among items (49)-(52), (49) and (50) referred to squeezing by pressing, while (51) and (52) referred to squeezing by wringing. Item (54) referred specifically to a wringing action, while (53) may have been an unmarked term whose meaning subsumed both pressing and wringing. (As Ann Chowning has pointed out (pers.comm.), there are two basic ways used to extract coconut cream: wringing coconut gratings through coconut ‘cloth’, or squeezing them in one’s hands.)

There was another term that may have been used to refer to wringing although its primary meaning was ‘twist’:

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15 I am grateful to Ann Chowning for pointing out the Lakalai form to me.
(55) POC *puloj ‘twist; twist fibers into string’; possibly also ‘wring’: LAK pulo, pulô/pulo ‘wring out; squeeze coconut cream into taro; perform a hand movement of e-rai dance; scratch the ears by twirling a stick in them; twist fibres into rope’, FIJ vulo, vulocla ‘twist a thread on the knee’, SAA pulo ‘turn about, turn over, tie round, twist’, PMP *pules ‘turn, twist’ (Dempwolff 1938)

5.6 KNEADING, MIXING, STIRRING

(56) POC *mo(n/n)o ‘knead’: MAB moono ‘knead’ (= ‘mix’?), FIJ mono ‘turn the taro pulp over and make it into a neat lump in preparation for pudding’, ROV mono, monola ‘squeeze’

(57) ?POC *(n/n)(a/o)tu ‘knead’: PPN *natu ‘knead, mix with water’, FIJ natu ‘knead with pestle and mortar’, KLA notu ‘kneaded things’

(58) POC *balur ‘mix, stir (food)’: MNM balur, balurla? ‘stir (food) vertically, so that what was at the bottom is now at the top and vice versa’, PPN *palu ‘knead, mix’

6. MISCELLANEOUS

The following reconstructions are a by-product of the research for the present study. They are in no sense systematic, and although they are not directly related to the main topic, I felt it worthwhile recording them here.

(59) POC *pasi ‘split, separate, butcher, cut up (an animal for food)’: FIJ vasi ‘scrape off the crust of roasted yams, or reeds for making a reed-wall; split firewood’, PPN *fasi ‘split, cleave’, TON fahi ‘split; slaughter (an animal) and cut it up for food (as a butcher does); chop (a coconut) in two’, ZAB pahe ‘cut up (e.g. a pig)’

(60) POC *bilo ‘cup; container for liquids’: TLO bilo ‘water container made from fruit of coconut tree’, FIJ bilo ‘cup or dish, originally a half coconut, made at the present day for drinking yaqona [kava] in’, KIR binolbino ‘calabash, gourd made with coconut shell’

(61) POC *ibu ‘drinking container, container for liquids’?; ‘a hollow in a tree holding water’?: PPN *ipu ‘container for liquid’, ULW ipu ‘a hollow in a tree holding water’, ?LAK el/piu ‘drinking coconut’ (e article), ‘KIR ibu ‘calabash, gourd, toddy shell made of coconut shell’, PMP *i(m)ipun ‘collect, gather’ (Dempwolff 1938). (Ann Chowning (pers.comm.) has suggested that LAK piu ‘drinking coconut’ may be a reflex of *ibu, with metathesis; compare LAK liu ‘to drink’ and likiu ‘tail’ (la article), which reflect – with metathesis – POC *inu/m and *ikuR, respectively. According to Jeff Marck (pers.comm.), KIR ibu is most likely a borrowing from Polynesian.)

(62) POC *kabu ‘ladle, dipper?; cup?’: PPN *kapu ‘cup-like container’, RAR kapu ‘a hollow receptacle used for containing fluid or other things or substances in: cup, basin, dipper; to dip up, ladle up, scoop up’, PAN *ka(g)bu(q) ‘ladle, dipper’ (Blust 1972c)

(63) POC *kaŋa, *(k)aga ‘drink by pouring liquid into open mouth, without putting container to lips’; evidence for *kaŋa: ROV kanga ‘drink water, etc., poured from a vessel held above the head’, ZAB kanga ‘drink, pour into mouth without touching lips’, MAB kaŋa ‘drink without putting container to lips’, GEL kanga ‘drink by pouring down the throat (usual Melanesian method)’, SAA anga ‘to open (e.g. open the mouth to speak; have
the mouth open as in adenoidal cases), FIJ gā root whose real meaning is ‘the opening of the mouth, any gaping action’; also ‘catch water in the mouth and drink it as it runs, e.g. from the spout of a bottle’, gāgā frequentative form of gā, and also in the sense of ‘standing agape, not answering’; evidence for *(k)aga: CHE āga ‘drink without touching the container or spout to the mouth’, LAU āga ‘pour water down throat from bamboo tilting vessel’, āgalu ‘pour water or drop food into mouth’, TOA āalāga ‘drink by pouring liquid into the mouth (the container does not touch the lips)’, ARE āka ‘drink by pouring water from a container straight down the throat without touching the lips with the container’.

The existence of ROV, ZAB kanga, MAB kaanga on the one hand, and FIJ gā, gāgā on the other, all meaning ‘drink by pouring liquid into open mouth’, and the possibility that Proto Oceanic had the term *(r/R)asik (38) besides *karas (34), both referring to scraping, suggest the presence of a verbal prefix ka- in Proto Oceanic.

(64) POC *qoso ‘food for a journey; food given in payment for work done’: CHE naloso ‘food prepared for travelling; prepare food for travelling’, GAO na?oso ‘food taken and consumed on a trip’ (in CHE and GAO na is a fossilised article), BGO oho ‘food for a journey’, GEL oho ‘food for a journey; payment for work in food’, ARE oto ‘provisions, food for a journey’, SAA oto ‘cooked food taken on a journey’, FIJ oco ‘food given in payment for a work or in course of it’, PPN *qoho ‘provisions for a journey’, TON oho ‘provisions, esp. for voyagers or for workmen’, REN oso ‘rations or tobacco as for workers (provided by the employer) or for a sea trip; food offering as to accompany pre-Christian funeral ritual for the dead; serve as rations or food offering’.

(65) POC *qucu ‘rub, make smooth by rubbing, wipe; make fire by means of fireplough’: MTU udula ‘rub a stick to make fire’, GEL uhu ‘rub, rub fire; scrape off skin by rubbing; cut design on forehead’, SAA usu, usulusu ‘rub, daub, wipe, grate’, TOL uu ‘wipe’ (Wright 1964), LAK huru ‘remove the outside of la-beho or other shell by rubbing; rub’,16 huru esuka ‘make fire with the fire-plow’ (esuka ‘the making of fire with the fire-plow; a fire-plow’ (e article, suka ‘scrape’)), PMP *qujus ‘rub’ (Dempw01ff 1938)

(66) POC *unu(p) ‘the fibrous material of a coconut husk and/or of the spade of a coconut frond, probably used for straining (e.g. grated coconut to extract cream)’: SAA unu ‘the fibrous spathe of a coco-nut frond, used for straining, sasali, the coco-nut cream from the grated nut’, WAY unu ‘straining cloth for kava, traditionally a fibrous material made from coconut husk (and perhaps the spathe of a coconut frond)’, FIJ i unu ‘a yagona [kava] strainer’, unu ‘to enter deeply into a thing, as a spear’, unulya (tr.) ‘to drink in, absorb; to feel’, glunuvla (tr.) ‘to drink’, MOT unuv ‘to sink in, be absorbed, of a fluid’, ROT unu ‘cord made of coconut-fibre (henu), sennit’, unulunu ‘fibrous integument growing at the top of the coconut-palm’, SAM unu ‘the strainer used in making oil, &c.’ (Pratt 1878), ‘woven wringer (used to extract dye from shreds of o’a [tree, Bischofia sp.] bark, etc.)’ (Milner 1966), TON unu ‘to dip, to plunge into water or other liquid’

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16 I am grateful to Ann Chowning for pointing out the Lakalai form to me.
17 This reconstruction is due to Andrew Pawley first pointing out to me the existence of a Wayan cognate of the Sa’a form.
7. SUMMARY

As the preceding discussion demonstrates, members of Proto Oceanic society employed a variety of methods to prepare their food. Without doubt, the set of terms reconstructed here is not the final word on this topic. It is hoped that future research will add to the list, and that the glosses of at least some of the items reconstructed here will be refined. The results of this study give us some idea about how speakers of Proto Oceanic prepared their food, and – in broad terms – about what kinds of foodstuff they prepared. In order for these findings not to be buried under the relatively large amount of data presented here, a summary of the main results follows.

Proto Oceanic people cooked their food in at least the following ways: baking in stone ovens (items 5, 7 and 8), roasting in fire (12, 13), boiling and possibly also steaming in pots (15-17). At least some kinds of food were (optionally) wrapped (most likely in leaves) when cooked (22, 23). The preparation of some foods involved pounding, mashing at some point during the cooking process (24) and/or kneading (56, 57). Some kinds of foodstuff were preserved by drying, which may have included smoking (26). There is no linguistic evidence suggesting that preserving food by fermentation was practised.

Not surprisingly, meat was part of the diet of the Proto Oceanic people (21, 48, 59), and so was fish (40) and most likely shellfish (42). To prepare vegetable food (such as tubers and nuts), a variety of processing techniques were employed: scraping, grating, paring, peeling, cracking, husking (section 5). Coconut milk featured as an ingredient in preparing food (36, 49-54).

APPENDIX: LANGUAGES CITED

The following information is included: the abbreviation of the language name, followed by the full language name, the primary subgroup of Oceanic the language belongs in (where applicable), and the source(s) of the data.

ANJ Anejom Southern Vanuatu Lynch (pers.comm.)
ARE 'Are'are South-East Solomonic Geerts (1970)
ARO Arosi South-East Solomonic Fox (1978)
BAB Babatana Western Oceanic Money (n.d.)
BGO Bugotu South-East Solomonic Ivens (1940)
BRO Bauro South-East Solomonic Fox (1978)
CAN Canala Southern Oceanic Grace (1975)
CHE Cheke Holo Western Oceanic White (1988)
DIO Diodio Western Oceanic Ross (pers.comm.)
EAS Easter Island Remote Oceanic Fuentes (1960)
EFJ Eastern Fijian Remote Oceanic Geraghty (1990)
EUV East Uvea Remote Oceanic Rensch (1984)
GAO Gao Western Oceanic Lichtenberk (notes)
GED Gedaged Western Oceanic Mager (1952)
GEL Nggela South-East Solomonic Fox (1955)
GIT Gitua Western Oceanic Lincoln (1977)
GRC Grand Couli Southern Oceanic Grace (1976)
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One might expect that people living on the coasts of small islands would have an abundance of terms for things maritime and, if they had moved there from some other maritime area, that these terms would be inherited rather than borrowed. It therefore comes as something of a surprise to find languages in this position which have borrowed much of their maritime terminology from some other language. This paper examines the maritime vocabulary in the non-Polynesian languages of Southern Vanuatu, and focuses particularly on loans from Polynesian sources.  

1. THE LANGUAGES OF SOUTHERN VANUATU

One Polynesian language – (West) Futuna-Aniwa – is spoken in the Tafea (formerly Southern) District of Vanuatu. The remaining languages of the District, spoken on the islands of Erromango, Tanna and Aneityum, form a closed subgroup whose nearest relatives appear to be the other members of the Central-Eastern Oceanic subgroup of Oceanic (see Lynch 1978c, 1982c, Lynch & Tryon 1985). The Southern Vanuatu group itself divides into three subgroups:

(a) Erromangan, consisting of Sie, Ura and some now extinct languages (including Utaha and Sorung);
(b) Tanna, consisting of North Tanna, Whitesands, Lenakel, South-West Tanna and Kwamera; and
(c) Aneityumese, with just one language, Anejom.

A considerable amount of work has been done on the reconstruction of Proto Erromangan (Lynch 1983a) and Proto Tanna (Lynch 1982d), and a discussion of the development of Proto Oceanic phonology in the Southern Vanuatu languages appears as Lynch (1978c).

1 This is an expanded version of part of a seminar paper I gave at the Australian National University in 1982 (Lynch 1982c). I am grateful for comments received there and at the 1990 symposium, for numerous discussions with Les Groube on this general topic, and especially for comments and suggestions made by Ross Clark, Terry Crowley, Paul Geraghty, Andrew Pawley and Darrell Tryon. I also thank Mike Huber for assistance with fish identification.

In 'maritime vocabulary' I include terms for the physical environment, names of fish and other marine life, and terms relating to fishing and canoe technology.

2 I use here the orthography of Proto Oceanic proposed by Ross (1988). For individual languages, the orthography is generally that of the sources as listed in Appendix 1; however, for the sake of consistency and readability, in this paper bw, b, d and g represent prenasalised stops, bw, pw and mw velarised.

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However, reconstruction of the phonology of Proto Southern Vanuatu is not yet complete, because of a number of problems still to be solved. I do not attempt in this paper to give Proto Southern Vanuatu reconstructions for lexical items, but instead give reconstructed forms for lower-order subgroups or actual forms from individual languages.

Maritime vocabulary will be treated under three separate headings: the physical environment in section 2; names of fish and other marine life in section 3; and terms for the canoe and its parts, and terms related to fishing in section 4. In each semantic area, I look at cases of continuity (i.e. where Proto Southern Vanuatu appears to have continued a Proto Oceanic form), and at cases of change (i.e. where Proto Southern Vanuatu appears to have innovated a form, or where one or more Southern Vanuatu languages appear to have borrowed a term from some other language). I am particularly concerned with examining borrowings from (one or more) Polynesian languages. Such loans can be identified with relative ease in the Southern Vanuatu languages. In the case of some nouns, they incorporate the Polynesian article \( t+ \) vowel, while with others (especially when the root is \( t \)-initial) they have no fused article. In a large number of cases, the retention of final vowels is a strong indicator of borrowing, as is the retention of vowels in pretonic (usually antepenultimate) position, since Southern Vanuatu languages generally lose vowels in these positions: thus a form like Proto Oceanic \( *\text{malino} \) 'calm, peaceful' would probably be directly inherited into, say, Lenakel as **amlin or **amlan; the actual Lenakel form amelinu, however, shows retention of both pretonic and final vowels, and thus suggests a Polynesian source – most like West Futuna marino (cf. example (8)).

2. PHYSICAL ENVIRONMENT

Language abbreviations in this and the following sections, together with sources of data, can be found in Appendix 1; data on which Proto Erromangan and Proto Tanna reconstructions are based can be found in Appendix 2.

2.1 CONTINUITY

The following forms (examples (1) - (6)) appear to represent direct inheritance in Southern Vanuatu languages of Proto Oceanic forms for the maritime physical environment.

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3 A number of points should be noted in relation to the lexical reconstructions given in this paper. Firstly, very many nouns begin with \( n \) (and also \( in \) in Anejom), reflecting a fused article (deriving from Proto Oceanic (POC) \( *na \)): where the root is derivable from a known POC form, then the reconstructed form of the noun consists of \( *n \) (or \( *na, *ne, \) etc.) separated from the root by a hyphen (thus POC \( *\text{kupe}a \), Proto Tanna (PTN) \( *\text{na-(kgy)apun} \) 'net'); where the root is not derivable from a known POC form, no hyphens occur (and thus PTN \( *\text{namu} \) 'fish' might equally well have been \( *n-amu \) or \( *na-mu \) ). Secondly, very many verbs have accreted an initial vowel, probably \( *a \) (cf. Lynch 1992): such verbs are reconstructed as \( *a\)-root (or as \( *V\)-root since, here and elsewhere, when the identity of a protovowel cannot be reconstructed with reasonable certainty, the symbol \( *V \) is used). Thirdly, hyphens are also used to separate elements in compounds, or in cases where the presence or absence (or, if present, the nature) of a prefix to a noun or a verb cannot be clearly established (e.g. POC \( *\text{bakiwak} \), Proto Erromangan (PER) \( -*\text{baiu} \) 'shark': Sie \( ne/mpou \), Ura \( u/beu \)). Other standard conventions apply.

4 I exclude from discussion here cases where forms in Southern Vanuatu languages do not continue Proto Oceanic forms and are not demonstrably borrowings, and where it appears that no Proto Southern Vanuatu reconstruction can be made.
In each example, the gloss at the beginning represents the meaning of the term in the languages of Southern Vanuatu; it also represents the meaning of all forms in other languages unless some other gloss is given for a particular item.

1. ‘sea’
POC *tasik > PER *dey, PTN *(n)-tahik

2. ‘(be) low tide’
POC *ma-masa ‘dry’ ((or possibly *maqatu) ‘low tide’) > SIE n/mah, ANJ in/mas, PTN *(a)-ma(sh)a

3. ‘detached reef’
POC *motu > PTN (‘land’ +) *mwərah

4. ‘reef’
POC *mwalo > ANJ in/moje

5. ‘coral’
POC *laje > ANJ in/las

6. ‘seaweed’
POC *lumut > PTN *ləmus

2.2 SOUTHERN VANUATU INNOVATIONS
There appear to be no forms which are clearly Proto Southern Vanuatu innovations in this semantic area.

2.3 BORROWING
The following terms (examples (7) - (13)) are probably Polynesian loans:

7. ‘bay’

8. ‘(be) calm (of sea)’
PPN *malino (> WFU marino): NTN a/malinu, WSN a/melinu, LEN, SWT a/melinu, KWM a/məlinu

9. ‘a wave’
PPN *peau (> WFU, ANW peau): SIE ni/mpiəu, NTN, WSN, LEN, SWT, KWM peau, ANJ ne/peau

10. ‘whirlwind’
PPN *qa(a)siosio (> WFU, ANW siosio): WSN, LEN, SWT, KWM siosio

11. ‘wind (general term)’
POC *maqatu (> WFU mtaq): SIE ne/mtaq, NTN metaq, SWN na/metaq, LEN, SWT na/mətaq, KWM na/mətaq.

12. ‘prevailing wind’ (?)
PPN *tokelau ‘north wind’ (> WFU tokorau ‘west wind, south-west wind’):
LEN tokolau ‘south wind’, SWT tokolau ‘south-east wind’, KWM takwarau ‘south-south-east wind’

(13) ‘wind from the south or east’

For the next two examples, there are (as far as I am aware) no Proto Polynesian reconstructions. However, phonological considerations suggest that the Southern Vanuatu forms have been borrowed from West Futuna-Aniwa:

(14) ‘north wind’
WFU ruetu, ANW ruotu ‘north’: LEN luatu, KWM ruatu, ANJ na/ruutu; SIE na/ruotu ‘east wind’, SWT luatu ‘north-east wind’

(15) ‘north-east wind’
WFU retuamlai: LEN luatuamlai, KWM ruatu amrai; SWT luatuamlai ‘north wind’

The form in (15) is clearly a compound incorporating the form in (14); it may well be that the two South-West Tanna forms have been misidentified, and that SWT luatu in fact refers to ‘north wind’ while luatuamlai refers to ‘north-east wind’.

The final example is less clearcut:

(16) ‘west wind’
WFU parapu: SWT na/pelaap, KWM na/parapu; LEN na/pwelaapw ‘south wind’

The Kwamera form suggests a borrowing from West Futuna, but the Lenakel and South-West Tanna forms are not clearly borrowings, and in fact they could be the source of the West Futuna form. However, given the fact that many other names for winds appear to have been borrowed into Southern Vanuatu languages from West Futuna, I incline slightly to the view that West Futuna is the source language here.

3. NAMES OF FISH AND OTHER MARINE LIFE

3.1 CONTINUITY

The following forms (examples (17 - (23)) appear to have been directly inherited into the Southern Vanuatu languages from Proto Oceanic:

(17) ‘shark’
POC *bakiwak > PER *-baiu, KWM pakau ‘barracuda’, ANJ ne/pyev

(18) ‘turtle’
POC *poŋu > PER *-avu, PTN *iakw(u), ANJ nahau

There are problems with establishing what the reflexes of POC *ŋ are in Southern Vanuatu languages, and in any case it is not clear that these forms do in fact derive from POC *poŋu. Ross Clark has suggested that they may be related to PNV *ŋavua (which presumably does not derive from POC *poŋu); if this is the case, they still represent ‘continuity’, though of a different kind. (It is for this reason that, for example, the Anejom form nahau has been written as such, and not as na/hau or n/ahau, since it is not clear if the a belongs to the fused article or to the root.)
(19) ‘mullet’
POC *kanase > ANJ ne/yna

(20) ‘octopus, squid’
POC *nusa > PTN *(a)hi, ANT niθ, (URA wis?)

(21) ‘stingray’
POC *paRi > SIE u/var, ANJ in/har, (PTN *vi(lr)a(a)kw?)

(22) ‘conch shell’
POC *tapuRi > SIE tovu, WSN toui, ANT in/tohou

(23) ‘sea-urchin’
POC *sopa > PTN *suai/a

The following item is rather less certain:

(24) ‘k.o. crab’
POC *kamakama > LEN ia/kəm ‘k.o. land crab’

In addition, it is possible that a POC form *[ali]ali ‘flounder, flatfish’ could be reconstructed on the basis of PPN *al, ANJ n/ajaj.

3.2 SOUTHERN VANUATU INNOVATIONS

The following terms (examples (25) - (34)) appear to be innovations in Proto Southern Vanuatu which are not demonstrably due to borrowings.6

(25) ‘flying fish’
PTN *vVinis, ANJ nowa/hiniθ

(26) ‘parrotfish’
SIE moŋkum ‘fish sp.’, PTN *ma(kg)əm, ANJ in/mokom

(27) ‘rabbit-fish’
SIE mesen ‘fish sp.’, PTN *mi(n)hin

(28) ‘eel (saltwater)’
SIE poki, ANJ in/pei, LEN paku ‘eel sp.’

(29) ‘eel (freshwater)’
SIE ne/ven, PTN *vin, ANJ ne/heŋ

(30) ‘bêche-de-mer’
PTN *sika(fu), ANJ ni/syahou

(31) ‘lobster’
SIE ye/loŋi, SWT luan/tahik, KWM ia/ren, ANJ ni/jvain

(32) ‘fish-scale’
SIE ninehen, ANJ ninehen

---

6 Because I have not finalised the reconstruction of Proto Southern Vanuatu phonology, no PSV proto-forms will be given here; therefore the status of these items as PSV innovations must necessarily be tentative.
(33) ‘k.o. crab’
SIE ne/vlah, PTN *-vilas, (ANJ in/yelas?)

(34) ‘k.o. shellfish’
SIE nompri, ANJ nepjen

Now consider the generic term for ‘fish’ itself:

(35) ‘fish’
PER *nomu, PTN *namu, ANJ numu

This clearly does not continue POC *ikan but, on the other hand, it may not be a Southern Vanuatu innovation. There are possible cognates in the following areas:

(a) Vanikoro (Solomon Islands): Buma namuko, Vano namweka, Tanema namaka (Tryon 1976b);
(b) Banks Islands (Vanuatu): Motlav nomomo, Sasar momo, Bek mwomwo (Tryon & Hackman 1983);
(c) Micronesia: “A defining characteristic of Ponapeic languages is that PMC [= Proto-Micronesian] *ika ‘fish’ has been replaced by mwamw, or some predictable variant thereof” (Rehg & Bender 1990: 16).

3.3 BORROWING

Lenakel has the term tuna, meaning ‘tuna’, borrowed from English, but I am not now sure whether this applies to the fish itself or to the canned variety. The remainder of the terms dealt with in this section are probably borrowings from Polynesian sources; I rely heavily on Robin Hooper’s paper in this volume for identification of species and for Proto Polynesian reconstructions. West Futuna-Aniwa forms are derived from Dougherty (1983a), Capell (1984) and from Hooper’s paper.

(36) ‘whale’
PPN *ta(fou)ra?a (> WFU tafora, ANW tafara): SIE tovura, NTN tapla, WSN tafla, LEN, SWT toulaai, KWM tafa

(37) ‘flying fish’
PPN *sasawe ‘Exocoetidae, flying fish sp.’ (> WFU save): SIE save

(38) ‘boxfish’
PPN *moamoa ‘Ostraciontidae, boxfish’ (> WFU momoa or moamoa): ANJ moamoa

(39) ‘coral trout’ (?)
PPN *tonu ‘Plectropomus leopardus (Lacépède), P. maculatus (Bloch), coral trout’ (> WFU tonu ‘Plectropomus and Cephalopholis spp.’): KWM tonu ‘grouper(?), k.o. fish with large mouth’
(40) ‘surgeonfish’
PPN *palagi ‘Acanthurus sp. of large size and elongate shape’ (> WFU paraqi ‘k.o. fish’): KWM paraqi

(41) ‘soldierfish, squirrelfish’
PPN *malau ‘general term for a number of fishes of the genera Holocentrus, Adioryx, Myripristis and Flammee, soldierfishes and squirrelfishes’ (> WFU marau ‘Adioryx caudimaculatus and others’): LEN malau ‘small red fish (usu. caught at night)’, KWM marau ‘soldierfish’, marauta ‘squirrelfish’

(42) ‘barracuda’
PPN *tapatuu ‘Sphyraena spp., barracuda’ (> WFU tapatu): LEN tapatu

(43) ‘barracuda’
PPN *haohao ‘Sphyraena spp., barracuda’ (> WFU tatao): LEN tetau ‘barracuda, sawfish’, KWM tataua

(44) ‘triggerfish’
PEP *kookili ‘Balistidae spp., triggerfish’: KWM koko ‘triggerfish’, and note also KWM kiri ‘Moorish idol fish’

(45) ‘eel’
PPN *pusi ‘Gymnothoras spp., sea eel’: KWM tapisi ‘k.o. seaworm’

Although with the next example I am not aware of a Proto Polynesian reconstruction, the source – on phonological grounds – seems to be West Futuna:

(46) ‘béche-de-mer’
WFU kipori: WSN, KWM kipori

One should also note the following:

(47) ‘sea-snake’
WFU tagaroa, ANW tagaro: NTN, LEN, SWT tapalua, KWM tagaru

Of relevance here is the relationship with the Polynesian culture-hero Tangaroa.

The following are less secure examples, because the glosses either vary considerably or are unspecific:

(48) ‘k.o. fish’
PPN *palu ‘Aphareus furcatus, small-toothed jobfish; Etelis carbunculus, squirrel fish snapper; Pristipomoides argyrogrammicus, big-eyed snapper; Tropidinius zonatus, flower snapper: Ruvettus pretiosus (Cocco), oilfish’: LEN pwaru, KWM paru ‘swordfish’

(49) ‘k.o. fish’
PPN *sa(a)putu ‘Lutjanus sp.’: SIE sapwotu ‘fish sp.’

7 There is another term in Kwamera for ‘surgeonfish’, and this is praqsivur. The second part of this term is sivur, which refers to the coconut lorry; what is interesting is that the first part of the term, praq, may well be an inherited form (with loss of vowels in pretonic and final positions), whereas the term paraqi seems to be a borrowing from West Futuna.

8 Hooper (this volume) also reconstructs PPN *taʔa “Holocentrus sp., probably H. spinifer (Forskål), armoured soldierfish”, and notes a number of cases where *malau + *taʔa (or sometimes *taʔa + *malau) occur (e.g. Tongan malautaʔa ‘Adioryx spinifer’). While there is no evidence in the West Futuna sources for this particular combination, one can presume that Kwamera marauta also has a Polynesian source.
(50) ‘k.o. fish’
PPN *?ume ‘Naso sp., unicorn fish’: KWM ume ‘k.o. fish’

(51) ‘k.o. fish’
WFU lago ‘fish sp.’: LEN lago ‘swordfish’

(52) ‘k.o. fish’
WFU sasua ‘fish sp.’: LEN sasua ‘grouper’

(53) ‘k.o. clam’
PPN *pasua: KWM pahasua

One ‘reverse’ borrowing should also be noted here, and this is the West Futuna form numulou ‘dolphin, porpoise’, which derives from Anejom numulou or numulou (note Anejom numu ‘fish’ in example (35); I cannot identify the second part of the compound).

4. CANOE AND FISHING TECHNOLOGY

4.1 CONTINUITY

Only a few terms in this semantic area seem to be directly inherited from Proto Oceanic:

(54) ‘outrigger-float’
POC *lima ‘hand’ > PER *ne-liman, ANJ nijma9

(55) ‘a paddle’
POC *pose > SIE ni/vuo ‘steering-paddle’, PTN *n-/vaia

(56) ‘a net’
POC *kupega > PTN *na-/kgy)apun, ANJ no/upwon, (PER *na(II)(au)pwan?)10

(57) ‘a hook’
POC *kawil > SIE div/kau, ANJ in/yowoj

(58) ‘bait’
POC *pani > PTN *n-/pian (with metathesis?)

(59) ‘to bail water’
POC *asu > KWM i/as

The terms for ‘outrigger-float’ in the Tanna languages present some problems. The terms themselves are listed in example (60):

(60) ‘outrigger-float’
NTN raman, LEN ramar, SWT lamal, KWM teman

All four terms appear to derive in some way or another from POC *saman; however, only NTN raman derives regularly from *saman. The other three languages show unexpected initial consonants – Lenakel r for expected t, South-West Tanna l for expected h, and Kwamera t for expected h. In addition, there is an unexplained development in the final

9 The POC form *lima ‘hand’ is also reflected in Anejom, as nijma-, with the meaning ‘hand’. It is not so reflected in Erromango, however: cf. Sie noru-, Ura degen, logun ‘hand’.

10 Note two problems here: firstly, the intrusive lateral (and loss of the velar) in the Proto Erromangan form; and secondly, the fact that in all three subgroups POC *ŋ is irregularly reflected as n rather than as g.
consonants in two languages, with Lenakel having \( r \) and South-West Tanna \( l \) for expected final \( n \). Borrowing may be involved here, but West Futuna \( ama \) is clearly not the source.

### 4.2 SOUTHERN VANUATU INNOVATIONS

The following terms appear to be Proto Southern Vanuatu innovations:

1. **'canoe'**
   - PER *nala(iu)*, PTN *[na-]yyau*, ANJ *nelyau*\(^\text{11}\)

2. **'to fish with a net'**
   - KWM *anai*, ANJ *anai*

### 4.3 BORROWING

The following terms (examples (63) - (66)) appear to be loans from Polynesian sources:

1. **'mast'**
   - PPN *tila* (> WFU *lira*): NTN, WSN, LEN, SWT *tila*, KWM *tira*

2. **'outrigger-boom'**
   - PPN *kiato* (> WFU *kiato*): NTN *noa-*/kiatu*, WSN *noa-na*/piatu*, LEN *(noua-*)nा*/kiatu*, SWT *kwa-*/kiatu*, KWM nə*/kiatu*, ANJ na*/kiato*

3. **'fishhook'**
   - PPN *matau* (> WFU *metao*): NTN *metao*, WSN, LEN *na-metau*, SWT, KWM *kwa-n-metau*

4. **'to paddle'**
   - WFU *sua*: SIE *a/huwo*, URA, LEN *a/sua*, KWM *a/sua*

The Tanna and Anejom forms in (64) and (66) do not appear to be directly inherited from POC *kiado* 'outrigger-boom' and POC *sua* 'paddle'; the expected directly inherited forms in Lenakel, for example, would be something like **nəkat** and **asu** respectively. It seems clear, therefore, that these forms are Polynesian loans.

The following terms (examples (67) - (69)), though they ultimately have an English source, are most likely borrowed from Bislama (cf. Crowley 1990):

1. **'canoe'**
   - NTN, WSN, LEN, SWT, KWM *kənu*, ANJ *kinou*; Bislama *kenu* (also *kanu, kinou*\(^\text{12}\))

2. **'mast'**
   - SIE *mas*, ANJ *mas*, *inyi-mas*; Bislama *mas*

---

\(^{11}\) Terry Crowley has raised the question as to whether there is a relationship between these forms and POC *layaR* 'a sail' (which seems to have been lost in the Southern Vanuatu languages). While this is not impossible, the presence of the velar in the second syllable of the Tanna and Anejom forms would be difficult to explain.

\(^{12}\) The Bislama loans seem to be the standard forms for 'canoe' in the Tanna languages; the forms deriving from PTN *[na-]yyau* (cf. (61) above) are used (i) with the vague meaning of 'boat', and apply to ships, launches, and the like, and (ii) with the sense of a moiety or some other social division (along the lines of, for example, Maori *waka*). In Anejom, however, the inherited form *nelyou* seems to be used more commonly with the meaning 'canoe' than does the borrowed form *kinou*. 
This last term is of interest, in that West Futuna has borrowed two terms for 'anchor': one, haŋka, clearly derives from Bislama; the other, us, is definitely non-Polynesian in its phonotactics, and in fact almost certainly derives from either North Tanna us or Lenakel uus.

5. DISCUSSION

It it clear that there has been considerable Polynesian lexical influence on the Southern Vanuatu languages in the semantic areas I have been examining. There are quite a number of terms for aspects of the physical environment (especially names of winds), names of a number of fish and other forms of marine life, and terms for parts of the canoe which clearly seem to be borrowed from West Futuna-Aniwa or, just conceivably, some other Polynesian language.

It should also be pointed out here that there are a number of other items of material culture which seem to have been borrowed into Southern Vanuatu languages from Polynesian sources, including terms for kava, bow and arrow, mat, platform or bed, rafters, tattoos and the dog. The culture-hero Mauitikitiki has also been adopted (e.g. Lenakel Mwatiktik) (see Lynch (1982c) for details).

One possible explanation for the number of Polynesian borrowings in this area of maritime terminology is that, having arrived by sea, speakers of Proto Southern Vanuatu turned their attention to the reef and the land, and did not exploit the deep sea to nearly the same extent as they did in more recent times.13 That is, it is possible that they treated the sea as if it were a river – fishing from the beach, exploiting the reef, but not venturing much beyond.

It is interesting in this regard to note the changes in canoe technology forced on the New Zealand Maori by the new environment they found themselves in (see Biggs, this volume). The Maori abandoned the double-hulled outrigger with sails in favour of long narrow single-hulled canoes which were paddled rather than sailed, which were much more suitable for river navigation and inshore voyaging. The early inhabitants of Southern Vanuatu may have simply taken this a step further: having found an extremely fertile island, with abundant shellfish on the reefs, and no real need to sail anywhere else, they may simply have given up sailing almost totally. Haddon (1937:17), for example, states:

Navigation has evidently played a minor role in the life of the Tannese. Today there is constant intercourse by means of small cutters, manned entirely by natives, between Aniwa and Tanna, but it is significant that the boats are owned exclusively by Aniwans; the voyages originate from that island, which is almost pure Polynesian.

13 One particular small point of interest here is in the words for ‘mast’ and ‘sail’. It will be seen from examples (63) and (68) that no Southern Vanuatu language has an indigenous word for ‘mast’: the Tanna languages have borrowed from Polynesian, while Sie and Anejom have borrowed from Bislama (the first part of Anejom inji-mas simply being ‘wood, tree’). It will also be seen that no mention at all was made in section 4 of forms for ‘a sail’. In Sie, nmah means both ‘cloth, clothes’ and ‘a sail’, and this form may be related to Fijian masi ‘tapa’. The form *nivVin ‘a sail’ can be reconstructed for Proto Tanna; this does not have the additional meaning of ‘cloth, clothes’. It may be that the earlier inhabitants had canoes without masts and sails, and that they subsequently borrowed these from the Polynesians.
It would appear, therefore, that having pretty much abandoned the use of canoes and the
exploitation of maritime resources beyond the reef for some considerable time, the people of
Southern Vanuatu were subsequently reintroduced to this technology by Polynesians from
neighbouring Futuna and Aniwa, from whom they derived much of their modern-day
maritime vocabulary.

APPENDIX 1: LANGUAGES AND SOURCES

The languages referred to in this paper, their three-letter abbreviations and sources of data
are:

**ERROMANGO**
- Sie (SIE)
- Ura (URA)

**TANNA**
- North Tanna (NTN)
- Whitesands (WSN)
- Lenakel (LEN)
- South-West Tanna (SWT)
- Kwamera (KWM)

**ANEITYUM**
- Anejom (ANJ)

**FUTUNA-ANIWA**
- West Futuna-Aniwa (WFU, ANW)

**OTHER**
- Proto Oceanic (POC)
- Proto Southern Vanuatu (PSV)
- Proto Erromangan (PER)
- Proto Tanna (PTN)
- Proto Northern Vanuatu (PNV)
- Proto Polynesian (PPN)

(Note: For Proto Nuclear Polynesian (PNP) and Proto Eastern Polynesian (PEP)
reconstructions for fish names I rely on Hooper's paper in this volume.)

APPENDIX 2: SOUTHERN VANUATU RECONSTRUCTIONS

Below is a list of all Proto Erromangan and Proto Tanna reconstructions cited in this
paper, together with supporting evidence. These are basically 'bottom-up' reconstructions; I
have not at this stage made any 'top-down' reconstructions, since these would depend on the
finalisation of Proto Southern Vanuatu phonology, a task yet to be completed.

**PROTO ERROMANGAN**

<table>
<thead>
<tr>
<th>Reconstruction</th>
<th>Supporting Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>*-avu 'turtle'</td>
<td>SIE navu, nahvu, URA yavu</td>
</tr>
<tr>
<td>*-baiu 'shark'</td>
<td>SIE nempou, URA ubeu</td>
</tr>
<tr>
<td>*dey 'sea'</td>
<td>SIE toy, URA de</td>
</tr>
</tbody>
</table>
*nala(iu) ‘canoe’
*na-(IL)(au)pwan ‘net’
*ne-liman ‘outrigger-float’
*nomu ‘fish’

PROTO TANNA
*(a)-ma(sl/)a ‘be low tide’
*i(a)hi ‘squid, octopus’
*iakw(u) ‘turtle’
*ləmus ‘seaweed’
*ma(kg)əm ‘parrotfish’
*mi(n)hin ‘rabbit-fish’
*na-(kgy)apun ‘net’
*namu ‘fish’
*[na-]yyav ‘canoe’
*nivVn ‘a sail’
*n-pian ‘bait’
*(n)-tahik ‘sea’

SIE lou, URA nelai (Utahai atnelo ‘his canoe’)
SIE naupwan, URA nalampon
SIE nelman, URA neliman
SIE, URA nomu (Utaha umu)

NTN as, WSN amas, LEN mha, SWT mas, KWM maha
NTN iiah, WSN iah, LEN, SWT thi, KWM is
WSN ləməs, LEN, SWT ləmus, (KWM iamha?)
LEN makəm, KWM məkəm ‘blue fish’
LEN məhin, KWM minhin
LEN, SWT nakapun, KWM nəpun
LEN, SWT nakapun, KWM nəpun
LEN, SWT nətehi, LEN tehe, SWT tahik, KWM təsi
LEN sikou, LEN səkəu, SWT səkəvə
LEN səvəhə, KWM səvəfa
LEN kəvləs, KWM iəvəra
LEN vən ‘freshwater eel’, SWT vən ‘saltwater eel’
LEN, SWT vənəvə, SWT vələakw, KWM vəraku
LEN, SWT vənəs, KWM vənis
1. INTRODUCTION

The aim of this paper is to reconstruct Proto (Nuclear) Micronesian (PMC) terminologies concerning the physical environment and compare them to Proto Central Pacific (PCP) and Proto Cristobal-Malaitan (PCM). Proto Oceanic (POC) and Proto Austronesian (PAN) reconstructions are mentioned to the extent that they suggest origins for etymologies observed in Nuclear Micronesian (MC), Central Pacific (CP) and Cristobal-Malaitan (CM). But I do not argue their justifications in the way that I do for PMC, PCP and PCM reconstructions. The POC and PAN reconstructions cited here are from other works and are for general reference.

The PMC, PCP and PCM reconstructions were made or accepted from other works on the basis of the subgroupings given in the figure. The MC subgrouping is from Jackson (1983). The CM subgrouping is from Levy (1980). The CP subgrouping is from no particular source but is meant to show the criteria employed in the present work for reconstruction of a PCP form. Neither the internal subgrouping of MC nor Cristobal-Malaitan are well established. Conclusions are not drawn that depend on the validity of these internal subgroupings but etymologies internal to MC are labelled according to Jackson’s groups. Evidence is not cited for PCP and PCM reconstructions given here but they were made according to standard comparative criteria: an internal form with an external cognate or internal cognates between two first order subgroups.

The theory of MC phonology follows Bender et al. (1990), Bender and Wang (1985), Jackson (1983, 1986), and Marck (1975, 1977). Four languages were considered in the reconstruction of PCM using the standard sources: ‘Are’are, Arosi, Kwaio and Lau. Levy’s (1979, 1980) sound correspondences were employed.

2. ORTHOGRAPHIES, ABBREVIATIONS AND SOURCES

The development of orthographies for the MC languages and PMC are discussed in the introductions to the individual language dictionaries, in Bender (1971), Jackson (1983,
FIGURE: PRESUMED RELATIONS
The organisation of the major PMC source (Bender et al. 1990) is described by Bender and Wang (1985). I shall abbreviate the 1990 work as PMC-B. Sound correspondences of living languages to PMC as reconstructed in PMC-B are reviewed thoroughly in Jackson (1983, 1986). Jackson's correspondences are employed here along with the orthography of those works, with three exceptions.

The first is the representation of final *-u in PMC. Bender et al. (1990) was assembled at a time when we observed centralised or fronted reflexes of PMC *-u in most living languages unless preceded by a back consonant or semivowel. This was considered an allophonic phenomenon in PMC at that point but words were reconstructed to PMC with *-u where living languages showed evidence of a back vowel being maintained and *u where living languages showed consistent evidence of centralising. Since that time I have shown (Marck 1991) that Kosraean does not reflect this centralising behaviour. Though the final vowel is lost, it usually shows evidence of being back before disappearing. The centralising phenomenon should now be attributed to Proto Central Micronesian (all MC languages other than Kosraean) but should not be reconstructed for PMC.

The second exception involves my representation of apicals, which differs in two respects from Jackson (1983, 1986). For the correspondences involving the retroflexed stops, affricates and fricatives I employ *t' rather than *c for Proto Chuukic (PPCK) and for the correspondences involving PMC-B *s and the t of living Chuukic languages I use PMC and PCK *s rather than Jackson's *d. MC orthographies, in general, are not easy to internalise and I believe the use of *t' and *s for both PMC and PPCK will better facilitate use of our materials.

The third difference here is my use of *z rather than *s' for the PMC correspondence resembling *s reflexes but showing loss in Kosraean. Jackson (1983) also uses this convention but it was not incorporated into PMC-B.

Orthographies for the living languages are often modified from standard use in PMC-B. The Kiribatese orthography is rather transparent but most of the rest deserve some comment. For Marshallese, PMC-B employs Bender's (1968) phonemic orthography. While very abstract, it is also very regular historically, something which is not true of the orthography which has developed in the history of Marshallese literacy and under which the entries of the dictionary are organised. The following special characters are employed for the Marshallese consonants here and in PMC-B:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'</td>
<td>dark consonantal variants</td>
</tr>
<tr>
<td>&quot;</td>
<td>round consonantal variants</td>
</tr>
</tbody>
</table>

The vowels of Marshallese in Bender's (1968) phonemic analysis are represented orthographically in the present work as:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>high</td>
</tr>
<tr>
<td>é</td>
<td>higher mid</td>
</tr>
<tr>
<td>e</td>
<td>lower mid</td>
</tr>
<tr>
<td>a</td>
<td>low</td>
</tr>
</tbody>
</table>

The phonological interpretation of Kosraean is problematic (Lee & Wang 1984). Phonometically there are such odd phenomena as the rounding or velarisation of many consonants before front mid vowels. These are represented in various ways
orthographically. The reader should consult the Kosraean dictionary and grammar (Lee 1975, 1976). For reference purposes, the orthography of the vowels is given here:

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>i</td>
<td>ih</td>
<td>u</td>
</tr>
<tr>
<td>Upper Mid</td>
<td>e</td>
<td>uc</td>
<td>o</td>
</tr>
<tr>
<td>Lower Mid</td>
<td>ac</td>
<td>uh</td>
<td>oh</td>
</tr>
<tr>
<td>Low</td>
<td>ah</td>
<td>a</td>
<td>oa</td>
</tr>
</tbody>
</table>

The representation of Pohnpeic vowels is as follows. The standard orthographies employ 'h' to mark length but comparative practice (PMC-B) has been to repeat the base vowel and omit the 'h'.

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>i</td>
<td></td>
<td>u</td>
</tr>
<tr>
<td>Mid</td>
<td>e</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>Low</td>
<td>ae</td>
<td></td>
<td>a</td>
</tr>
</tbody>
</table>

We should also note that Pohnpeian orthographic t is the retroflexed affricate while orthographic d is the plain stop. Additionally, -w is commonly written as -u in the Pohnpeian orthography. The actual phoneme involved is employed in the present materials to the extent that Rehg has clarified their status in his contributions to PMC-B.

The representation of Chuukic vowels in PMC-B and this work differs only slightly from that of the standard orthographies. The difference is the representation of Woleaian orthographic 'oa' as 'ø', 'eo' as 'é' and 'iu' as 'ü' to correspond to Chuukic orthographies to the east:

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>i</td>
<td>ú</td>
<td>u</td>
</tr>
<tr>
<td>Mid</td>
<td>e</td>
<td>é</td>
<td>o</td>
</tr>
<tr>
<td>Front</td>
<td>á</td>
<td></td>
<td>ø</td>
</tr>
</tbody>
</table>

There is also a small difference in the representation of Puluwatse 'r' sounds between Elbert (1972) and PMC-B. Elbert represents the retroflexed liquid (much like American English) with orthographic 'r' and the trill with a diacritic above the 'r'. PMC-B adopted plain 'r' for the trill and 'rh' for the liquid, in keeping with usages that have developed for Satawalese and Saipan Carolinian.

Orthographies for the other study languages and protolanguages are as found in the sources except for POC which has been standardised to Ross's (1988) orthography. Also, I use *ff for PCM where Levy (1980) uses *v.

The orthography for Proto Central Pacific is that of Geraghty (1986) and that for Proto Polynesian from Biggs (n.d.).
MC  Nuclear Micronesian
PN  Polynesian
OC  Oceanic

Protolanguages:

PAN  Proto Austronesian (Wurm & Wilson (1975); PMC-B; POLLEX)
PCK  Proto Chuukic (All MC reconstructions are from Bender et al. (1990) except for a few from the present work.)
PCM  Proto Cristobal-Malaitan (from the present work employing Levy’s (1979, 1980) orthography and sound correspondences)
PCMC Proto Central (Nuclear) Micronesian
PCP  Proto Central Pacific (mostly from the present work employing Geraghty’s (1986) orthography and sound correspondences)
PEMP  Proto Eastern Malayo-Polynesian (POLLEX)
PEO  Proto Eastern Oceanic (POLLEX)
PFJ  Proto Fijian (Geraghty 1986)
PMC  Proto (Nuclear) Micronesian
PMP  Proto Malayo-Polynesian (POLLEX)
POC  Proto Oceanic (Ross, pers.comm.: Ross’s (1988) orthography is employed.)
PPCK  Proto Pohnpeic-Chuukic
PPN  Proto Polynesian (All PN reconstructions are from Biggs’s (n.d.) POLLEX except for a few from the present work noted: ‘(J.M.’).)
PNP  Proto Nuclear Polynesian
PSS  Proto South-East Solomonic (PMC-B; POLLEX)
PWMC  Proto Western (Nuclear) Micronesian

Source Abbreviations:

PMC-B  Proto Micronesian word list (Bender et al. 1990)
POLLEX  Proto Polynesian word list (Biggs n.d.)

Living Languages:

ARE  'Are'are (Geerts 1970)
ARO  Arosi (Fox 1970, 1978)
BAU  Bauan Fijian (Capell 1973)
CHK  Chuukese (Trukese)(PMC-B; Goodenough & Sugita 1980)
CRL  Saipan Carolinian, Elle dialect (PMC-B; Jackson & Marck 1991; author’s notes)
FIJ  Fijian of unspecified dialect (POLLEX; PMC-B)
KIR  Kiribatese (Gilbertese)(PMC-B; Bingham 1908; Eastman 1948)
KSR  Kosraean (Kusaiean)(PMC-B; Lee 1976)
KWA  Kwaio (Keessing 1975)
LAU  Lauan (Fox 1974)
MAO  Maori (POLLEX)
MOK  Mokilese (PMC-B; Harrison & Albert 1977)
MRS  Marshallese (PMC-B; Abo, Bender, Capelle & Debrum 1976)
MRT  Mortlockese (PMC-B)
NGK  Ngatik (PMC-B)
PLP  Pulap (PMC-B)
PNG  Pingelapese (PMC-B)
PON  Pohnpeian (PMC-B; Rehg & Sohl 1979)
PSK  Pulusuk (PMC-B)
PUA  Pulo Annese (PMC-B)
PUL  Puluwatese (PMC-B; Elbert 1972)
SAA  Sa’a (POLLEX; PMC-B)
SAM  Samoan (POLLEX)
SNS  Sonsorolese (PMC-B; Capell 1969)
STW  Satawalese (PMC-B)
TIK  Tikopian (POLLEX)
TON  Tongan (POLLEX)
ULI  Ulithian (PMC-B)
WAY  Wayan Fijian (Pawley & Sayaba, forthcoming)
WOL  Woleaian (PMC-B; Sohn & Tawerilmang 1976)

3. THE EVIDENCE

The lists at the head of each subsection give the highest level reconstruction possible within MC, give a general gloss for the MC reconstruction and relate the reconstruction to an early OC form if one is known. After each list is the body of evidence for the MC reconstructions accompanied by comparison to PCP and PCM. The lists are for reference purposes only and should not be taken as a substitute for examining the discussion of data for level of MC reconstruction, OC gloss or problems with the gloss for the MC reconstruction. These are all generalised in the lists.

3.1 SUN, SKY, EARTH AND SEA

<table>
<thead>
<tr>
<th>POC or Post-POC</th>
<th>PMC or Post-PMC</th>
<th>MC Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>*qaco</td>
<td>*alo</td>
<td>sun</td>
</tr>
<tr>
<td>*nusa</td>
<td>*anu(s,z)a</td>
<td>small island</td>
</tr>
<tr>
<td>*panua</td>
<td>*fanua</td>
<td>land, island</td>
</tr>
<tr>
<td>*pituqun</td>
<td>*fituu</td>
<td>star</td>
</tr>
<tr>
<td></td>
<td>*ira</td>
<td>light, flash</td>
</tr>
<tr>
<td>*ira</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*lagi</td>
<td>*lagi</td>
<td>sky, heaven</td>
</tr>
<tr>
<td>*ma(d)rania(R)</td>
<td>*marama</td>
<td>moonlight; (perhaps) the moon itself</td>
</tr>
<tr>
<td>*sawa</td>
<td>*masawa</td>
<td>ocean (the place)</td>
</tr>
<tr>
<td>*boji</td>
<td>*p’opi</td>
<td>night</td>
</tr>
<tr>
<td>*raqani</td>
<td>*raani</td>
<td>day</td>
</tr>
<tr>
<td>*rodrom</td>
<td>*rot’o</td>
<td>dark, unilluminated, darkness of night</td>
</tr>
<tr>
<td>*sakaRu</td>
<td>*sakau</td>
<td>reef, shoal; reef island</td>
</tr>
<tr>
<td>*sinaR</td>
<td>*(s,z)ina</td>
<td>light, shine</td>
</tr>
<tr>
<td>*tasik</td>
<td>*tazi</td>
<td>the sea, waters of the sea</td>
</tr>
<tr>
<td>*taqu(n)</td>
<td>*ta(w)u</td>
<td>sun, year, season</td>
</tr>
<tr>
<td>*dranum</td>
<td>*t’ani</td>
<td>fresh water</td>
</tr>
</tbody>
</table>

Ross (1988:281, 340) reconstructs POC *qaco ‘sun’ on the basis of non-Oceanic and Admiralty Islands reflexes. PMC and PCM share an irregular reflex of POC *c in this form, supporting Blust’s (1984b) suggestion of a subgroup.

*anu(s,z)a ‘small island’ (PMC): PCK *anusa ‘small, probably uninhabited island’: STW alut, WOL aluta ‘small uninhabited island’; PAN *nusa ‘island’ > POC *nusa ‘small offshore island’ > PCM *anuta ‘place name for small islands’, PCP *anuca ‘no of island’


*fítúu ‘star’ (PMC): KIR itoi, MRS yijiw, KSR itih, itu, PON usu, PNG usu, MOK uju, PCK *fítúū: MRT fúú, CHK fúú, PUL fúú, STW fúú, CRL fúú, WOL fúsúú, fuís, ULI fis, PUA didi, SNS fiidi ‘star’; PAN *bituqen > POC *pituqun ‘star’: PCP *f(i,e)qu(u) ‘star’, PCP *(i,e)tuqu ‘star’

*íra ‘light, flash, lightning’ (PCMC): KIR iring ‘light’, KSR wir ‘light’, MRS wir(wir) ‘flame, flash, burning, blaze, lighted’, PCK *ora ‘light, flash of light’: CHK wore(y) ‘put a light on, shine a light on’, PUL wora(ar) ‘light’, CRL were(we) ‘lightning’, WOL were(we) ‘lightning, shine, light, flash’, were ‘light, light, gleam, flash’

The retention of PMC *r in Kiribatese is irregular as is the raising and backing of its final vowel. The rounding of the initial vowel in Marshallese is irregular and we would expect the high vowel to have lowered. The rounding of the initial vowel in PCK is irregular. On the whole, this preliminary PMC-B reconstruction looks as if it has been made to accommodate irregular internal correspondences as well as irregular correspondences to external evidence. PMC-B speculatively relates the form to PAN *sinaR > POC *sinaR ‘light, shine’ but there is an obvious PMC reflex in PMC *(s,z)ina ‘light, shine’. (See MC *(s,z)ina ‘light, shine’ in the current list.)

*kat’awa ‘heaven, ‘Hawaiki’ (PMC): KIR karawa ‘heaven, the blue sky; the skies’, KSR kasra ‘queen’, kusra ‘place name’, kusrao ‘heaven’, toh-kosrah ‘king of Kosrae’, PON kataw ‘mythical place name’, PCK *kat’awa ‘mythical place name; basalt’: CHK achaw ‘mythical place name; basalt’, PUL yaraw ‘volcanic rock’, CRL aschaw ‘basaltic rock’, WOL gashawashawa ‘big flat rock at seaside’

Goodenough (1986) has discussed this set of lexical agreements and details of the semantic notion extensively and I will not do so here. I want, however, to point out that: (1) KSR kusra ‘place name’ seems the most regular of the possible reflexes of PMC *kat’awa by comparison to PMC *tarawa > KSR tuhla ‘barracuda’; (2) The form apparently came to refer to rock, and probably basaltic rock, in PCK, a point not emphasised by Goodenough; and (3) The reconstruction forms a minimal pair with PMC *kat’awu ‘cloud’ < POC *ka(d)rapuR ‘rain, cloud’. Trisyllabic cognates from CP and CM were not encountered although Goodenough (1986) suggests a possible relationship to a disyllabic Fijian form.


More common are reflexes of POC *pulan ‘moon’: PCM *fula ‘moon’, PFJ *vula ‘moon’ a form which is not currently known in MC.

*mazawa ‘ocean (the place)’ (PMC): KSR meoха, KIR marawa, MRS metew, PON madaw, PNG maedaw, MOK madaw, PCK *masawa: CHK mataw, PUL metaw, STW metaw, CRL metaw, WOL matawa, ULI madaw, PUA matawa ‘id.’; PCM *matawa ‘open sea’

This is one of the forms that Blust (1984b:109-111) puts forward as an innovation of the weakly defined Malaitan-Micronesian group. POC *masawa was once proposed by Grace (1969) but Blust notes that the evidence internal to OC was limited to MC languages. Forms based on *sawa are common in AN languages with meanings having to do with space and channels (Pawley, pers.comm.), a matter known to Grace and Blust. *Ma- is a common prefix throughout all of OC. Thus the MC word continues an old AN form and has added a common OC prefix, something which CM languages have also done.

*p'oni ‘night’ (PMC): KIR boq, MRS béŋ, KSR foŋ, PNG pwoŋ, MOK pwoŋ, PON pwoŋ, PCK *p'oni: MRT pwoŋ, CHK pwong-, pwini-, PUL pwoi-, STW pwoŋ, pwoi-, CRL bwoong, bwoi-, WOL bogi, ULI boŋ-, PUA pwoongi, SNS pwoongi ‘id.’; PAN *beŋi > POC *boqi ‘night’ > PCM *boqi, PCP *bogi ‘night’

*raani ‘day’ (PMC): MRS rahan, KSR lwen, PNG raan, MOK reen, PON raan, PCK *raani: MRT raán, CHK ráán, PUL ráán, STW ráán, CRL ráán, WOL raali, ULI raali-, PUA laani-, SNS laari ‘day’; PAN *daqaNi > POC *raqani ‘daytime’ > PCM *dani, dapi

*rot’o ‘dark, unilluminated, darkness, darkness of night’ (PMC): KIR ro(ro) ‘black, dark color’, MRS (ma)req ‘dark (r and d do not co-occur)’ (i.e. *t > q because of a morpheme structure rule), KSR lohsr, PNG roas, MOK ros, PON rot, PCK *rot’o: MRT rosh, CHK roch, PUL roorh, STW roth, CRL rosch, WOL rosbo, ULI roco-, PUA loso ‘dark’; PAN *DeDem > POC *rodrom > PCM *rodo ‘dark(ness), night’

dógóó ‘long reef’, PUA takai ‘group of islands, archipelago’; POC *sakaru ‘reef’ > PCM *ta’alu ‘shoal, shallow reef area’, PCP *cakau ‘coral reef’

(See also MC *takau ‘rock, stone, reef’ in section 3.5.)

*sina ‘light, shine’ (PMC): KIR -ina: ma-ina-ina ‘white’, ga-ina ‘daytime’, MRS jén ‘start a fire’, PCK *sina ‘light, shine’; MRT *sina ‘shine, light’. (See also MC *t’akau ‘rock, stone, reef in section 3.5.)


The MC correspondences often have more to do with a season or time of year than the sun, specifically. (See MC *a(w)u ‘air, climate, season’ in section 3.2 and MC *alo ‘sun’ in this section; see MC *a(w)u ‘air, season’ in section 3.2 for discussion of PCM *au ‘southeast tradewind season’ which may be cognate with the present form.)


### 3.2 WEATHER AND SEASONS

<table>
<thead>
<tr>
<th>POC or Post-POC</th>
<th>PMC or Post-PMC</th>
<th>MC Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>*agin</td>
<td>*api</td>
<td>wind, breeze, air</td>
</tr>
<tr>
<td>*au</td>
<td>*a(w)u</td>
<td>air, season</td>
</tr>
<tr>
<td>*auniari</td>
<td>*auniari</td>
<td>whirlwind, waterspout</td>
</tr>
<tr>
<td>*taqgi</td>
<td>*taqgi</td>
<td>dry season, winter</td>
</tr>
</tbody>
</table>
*ka(d)rapuR  
*iaa  
rainbow

*kat'awu  
*kat'awu  
cloud, rain

*malua  
*malua  
calm; calm, of the sea

*m'arakii  
*m'arakii  
rainbow

*parara  
*parara  
summer, tradewind

*raki  
*raki  
breadfruit season, season of plenty

*taqu(n)  
*tawu  
sun, year, season

*aui(\)  
*aui(\)  
rain

*a(n)u  
*a(n)u  

(See also MC *a(w)u ‘air, season’, *para(ta) ‘wind, tradewind’ in this section.)

*a(w)u  
*a(w)u  
‘air, season’ (PMC): KIR au ‘season, position of sun n/s of equator’, PCK *au ‘air, atmosphere’: STW yaw(\) ‘air, atmosphere’

This is a possible reflex of POC *taqu(n) ‘season’ but this would involve irregular loss of the initial consonant in PMC. A possible cognate from PCM with no irregularities is seen in PCM *au ‘southeast tradewind season’. Since PCM lost PSS *t the comparison is ambiguous and PCM *au could come either from a POC *taqu- or *aqun-. (See MC *ta(w)u ‘sun, year, season’ in section 3.1.)

*auniari  
*auniari  

This may be analysable as *au-ni-ari ‘atmosphere-of-?’ where *ari had some as yet unreconstructed meaning along the lines of ‘troublesome, fearful’ or whatever. The form is not yet known outside MC and is reconstructable only to PPCK within MC.

*faqi  
*faqi  
‘dry season, winter’ (PWMC): MRS (hagen)yag ‘wintertime, windy season, dry season (‘wind from the north’), PCK *efagi ‘dry season, winter’: MRT (le)efén ‘dry season’, PUL (le)efén ‘in season with few breadfruit’, STW (le)efén ‘fall season, northern tradewind season’, CRL (le)efén ‘winter, northeast tradewind season’, WOL yefagi ‘winter, season with few or no breadfruit’

Given the differences in compounding, we might suspect that the usage developed independently in Marshallese and Chuukic from PMC *faqi ‘north’. External cognates have not been identified. (See MC *faqi ‘north’ in section 3.8.)

*iaa  
*iaa  
‘rainbow’ (PWMC): MRS yiyah ‘rainbow (W. dialect)’, PON aiaia, iaiaia ‘rainbow’

This is a good match but a very limited distribution. No external cognates are known at this writing. (See MC *m'araki ‘rainbow’ in this section.)
*kat'awu 'cloud, rain' (PMC): KIR karau 'rain', MRS kedaw 'cloud, overcast', KSR kuhsrao 'sky, heaven', PNG kaesaew 'rain, to rain', MOK kosoaw 'cloud', PON ketew 'rain, to rain', PCK *kot'owu 'cloud': MRT woshow, CHK kuchuu, SNS gosowu 'cloud', PUL worhow 'white cloud', STW worhow 'rain cloud', CRL oschow, WOL goshou 'rain'; POC *ka(d)rapuR 'rain'

(See *kat'awa 'heaven' in section 3.1 with which it formed a minimal pair.)

*malu 'calm; calm (of the sea)' (PMC): PNG malun 'calm, cloudiness', MOK molun, PON malun 'calm (of the sea)', PCK *malua 'calm (of the sea)': MRT maléw, CHK ménú, núwa, STW malú, CRL malú 'calm (of the sea)', MRT (m)malú 'tired (of people)', WOL malúwa 'loose (as an untied rope)', PUA núu 'calm (of water)'

The final consonants of Pohnpeic are unaccounted for. I would suggest a possible POC or PEO *malua 'calm, soft, gentle, slow, quiet' on the basis of MC correspondences to: PCM *malu 'soft, gentle, flexible' and PCP *malua 'gently, slowly, quietly'. The word is similar to words for 'shade'. (See PMC *luru 'shade' in Section 3.9.)

*malumalu 'wind, storm, typhoon' (PMC): PNG melimeli 'typhoon', MOK melmel 'storm, typhoon', PON melimel 'windstorm, typhoon', PCK *malimalu 'storm, typhoon': MRT melúmel, WOL malúmalú, ULI malémalé 'storm, typhoon', CHK ménúmén, PUL mâlemál 'storm', STW mâlimal 'typhoon', CRL mâlimál, malúmal, ULI malémalé 'typhoon, storm'

Ross (pers.comm.) relates this to a word around New Ireland reconstructable as *malu 'wind'.

*m'arakii 'rainbow' (PCK): MRT (anú)mwarase, CHK mwárisi, PUL (yanú)mwarehiy 'rainbow', STW mwáresi 'rainbow ('older people')'. *rakiimi 'rainbow' (PCK): MRT rásiim, CHK resiim, CRL rásíim 'rainbow', STW resiim 'rainbow ('younger people')'

This doublet is known from eastern Chuukic languages only (see MC *iaa 'rainbow' in this section). Given how little we sometimes know about the historical dynamics of Kosraean, it is not impossible that the -lahkwem and -nwekwem form in the Kosraean doublet (Iwelalhwem, nenwekwem 'rainbow') derives from *-rakimii and is somehow related to the Chuukic form.

*parara 'thunder' (PMC): KIR baa, KSR puhlahl, MOK palar, PCK *parara: CHK paach, PUL pac, STW (p)pac, CRL pac, WOL pacca, ULI parr, SNS pala, PUA paala 'id.' (*parara in PMC apparently > *parra in PCK and then *pacca in most of the living languages where *-rr- is not generally tolerated); POC *paRaRa 'thunder'

*parata 'tradewind' (PMC): PON (nan)par 'tradewind season', PCK *parata 'tradewind': MRT paras 'rain that comes in due to wind', WOL paras 'tradewind', PUA panada 'be windy, blow'. PMP *habarat 'west wind' > POC *qapaRat 'monsoon, rain winds' > PCM *aara 'SE trades', PCK *avaa 'hurricane, storm'

If PCM is cognate it has lost POC *p which it did not regularly do (see MC *ara 'south' in section 3.8). Chuukic appears to show the addition of a vowel to the final POC consonant while Pohnpeian shows an uncomplicated regular (POC > PMC) loss of the POC final C and PMC final V (given *para). Neither Pohnpeian or Chuukic gives evidence of the initial POC syllable.

(See MC *ta(w)u* immediately below.)

*ta(w)u* ‘sun, year, season’ (PMC): see entry in section 3.1.

*u(s,z)a* ‘rain’ (PMC): KIR uura ‘throw water onto by hand, sprinkle’, MRS wét (Vi), witey (Vt) ‘to rain (on)’, MOK wud ‘rain’, PCK *usa*; MRT úút, uta-, CHK wúút, CRL úúût, WOL uta, ULI yuda, PUA úúta, SNS wúúta ‘rain’; PAN *quzan* ‘rain’ > POC *qusan > PCM *uta, PCP *uca ‘id.’

### 3.3 Time of Day

<table>
<thead>
<tr>
<th>POC or Post-POC</th>
<th>PMC or Post-PMC</th>
<th>MC Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Rapi</em></td>
<td><em>faka-afi</em></td>
<td>evening</td>
</tr>
<tr>
<td><em>malawa</em></td>
<td><em>mala</em></td>
<td>dawn</td>
</tr>
<tr>
<td><em>ñoRap</em></td>
<td><em>nanoa</em></td>
<td>yesterday</td>
</tr>
<tr>
<td><em>boji</em></td>
<td><em>p’opi</em></td>
<td>night</td>
</tr>
<tr>
<td><em>raqani</em></td>
<td><em>raani</em></td>
<td>day</td>
</tr>
<tr>
<td></td>
<td><em>tora</em></td>
<td>morning</td>
</tr>
<tr>
<td></td>
<td><em>-wata</em></td>
<td>noon (suffixed to ‘sun’)</td>
</tr>
</tbody>
</table>

*faka-afi* ‘evening’ (PMC): KSR ekuh, PCK *faka-afi*; MRT (lee)fááf, CHK fááf ‘evening meal, main meal’, PUL (le)fááf ‘evening meal’, STW fááf, CRL (lee)fááf ‘in the evening’, WOL fegaaфи ‘last night’, PUA dakadi, SNS fakaфи ‘evening’

The second morpheme of the PMC reconstruction is widely known in OC and AN in general: PAN *Rabi > POC *Rapi: PCM *lafi ‘evening’, PCP *(R)avi.*

*l(u,a)tuu* ‘tomorrow’ (PMC): MRS (yi)ljiw, KRS lutu, PCK *latuu, CHK néwú, PUL layú, STW naú, CRL laay, WOL laúú, SNS (wa)radi ‘tomorrow’

External cognates are not presently known. (See MC *tora ‘morning’ in this section.)

*mala(wa)* ‘dawn’ (PMC): PCK *mala(wa), CHK (m)man, WOL manna- ‘dawn’, MRT (m)mala(we), STW man, CRL maal ‘dawn, sunrise’, STW man(natá) ‘sunrise’

I would reconstruct POC or PEO *malawa ‘dawn’ > PCM *malawa, PCP *(mala)malawa ‘dawn’.*

*nanoa* ‘yesterday’ (PMC): KIR (gkoa)nana *yesterday’, nana *the front, before’, MRS (yi)nney, PCK *nanoa, MRT nanaw, CHK nánú, PUL nánú, STW nánú, CRL lane, WOL lañawa, ULI lanow, PUA nana *yesterday’; PAN *(ñ,ñ)Rab > POC *ñoRap ‘before, formerly, yesterday’ > PCM *nanola, PCP *noa ‘yesterday’
The *na- increment on the POC base is unique to CM and MC but the same increment seems to be present in PPN but applied to a different base: PPN *nanafi ‘yesterday’.

*p'oji ‘night’ (PMC): see discussion in section 3.1.

*raani ‘day’ (PMC): see discussion in section 3.1.

*tora ‘morning’ (PPCK): PON sooraa(n) ‘pre-dawn hours (lit.: ‘not day’)’, PCK *tora ‘morning’, MRT soor, CHK soor, sora-, PUL hora-, STW (yótó)sor, CRL (lee)sor, WOL (loo)sor ‘morning’

Depending upon external evidence that may develop we should perhaps assume that PCK reanalysed the PON type into a single morpheme and that the protoform was *tooraani.

*("sun"-)

POC PMC MC Gloss
or Post-POC or Post-PMC

*laje

*lau

*maca

*namo

*napo

*galu

*po(d)ra

*laje

*masa

*nam'o

*nao

*galu

*ot'a

*pailapi

*pasa

*bucoq

*p'usop'uso

*p'ut(u,i)

*sakaRu

*sawa

*laje ‘coral’ (PMC): MRS l'ay ‘gravel’, KSR lahs ‘k.o. coral’; POC *laje ‘branching coral’


Jackson (1983:380) suggests that the reconstructed meaning is a semantic innovation of PMC: “POC *lau is reconstructed with the meaning ‘open sea, seashore’. The PMC form for
the former of these meanings is *mazawa*. Grace (1969) reconstructs *lau* ‘open sea, seashore’ while Ross (1988:276) reconstructs *laur* ‘sea’ for the form. The present reconstruction appears to be the PMC reflex of that form. It was replaced by *mazawa* for the ‘ocean’ meaning in PMC as Jackson observed and PCM as Blust (1984b:109-111) later observed. (See *mazawa* ‘ocean’ in section 3.1.)


Mokilese is irregular in *n > l* and *m > m*; PAN *namaw* ‘sheltered water’ > POC *namo > PCM *namo, PCP *namo* ‘lagoon’.

*galu* ‘ocean swell, billow’: MRS gél ‘ocean swell, mounting wave which does not break, billow’, PNG *(pwuu)gal* ‘deep sea, where the ocean is blue’, MOK gälal ‘low tide’; POC *galu* ‘ocean wave’: PC *galu: LAU galu*galu ‘a rough confused sea’; PCP *gwalu* (POLLEX) ‘wave’


The final vowel is reconstructed on the basis of Kiribatese and Pulo Annese evidence. *Ot’o* is suggested by Woleaian and Ulithian. The Kosraen cognate is somewhat doubtful. The reconstruction is a good match for PCP *voda* ‘rocks in sea’ and we might reconstruct POC or PEO *po(d)ra* ‘reef, reef rocks’. (See MC *sakau* ‘reef, reef island’ in section 3.1.)

*pailangi* ‘horizon’ (PWMC): MRS payélég, PCK *pailangi: MRT payiléng, CHK (p)peyinen, PUL (yóro)páálaŋ, STW (p)payiléng ‘horizon’

The form is not known externally; it is multimorphemic and may have meant ‘arm/wing of the sky’.


The second Kosraen consonant is irregular. The Pulo Annese correspondence is weak semantically. The form is similar to a PAN reconstruction: PAN *payah* ‘swamp’ but no probable cognates were identified in CM or CP.


Note that PCM had an irregular *s > *r as did PCK.

*p’ut(u,i) ‘high tide’ (PCMC): KIR (ia) buti, MRS (yi) bij ‘high tide’

Evidence for the form is limited to Kiribatese and Marshallese.

*sakau ‘reef, shoal; reef island’: see section 3.1.

*sawa ‘channel, passage through reef’ (PMC): KIR rawa, MRS tewe-, PNG daw, MOK daw, PON daaw, PCK *sawa: CHK taaw, STW taaw, CRL taaw, WOL tawa, ULI daw, PUA taaw, SNS (t) taaw ‘channel, passage through reef’; PMP *saw q ‘channel’ > POC *saw a(γ) ‘strait, passage between islands’ > PCM *tawa ‘channel, landing place’, PCP *sawa ‘channel’

3.5 SAND, SOIL AND ROCKS

**POC**
**PMC**
**MC Gloss**

<table>
<thead>
<tr>
<th>or Post-POC</th>
<th>or Post-PMC</th>
<th>rock, stone</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>patu</em></td>
<td><em>fatu</em></td>
<td>a kind of clay</td>
</tr>
<tr>
<td><em>maka</em></td>
<td><em>maka</em></td>
<td>stones for throwing</td>
</tr>
<tr>
<td><em>pika</em></td>
<td><em>mat’aro</em></td>
<td>mud</td>
</tr>
<tr>
<td><em>belu</em></td>
<td><em>p’elu</em></td>
<td>sand, beach, sandbank</td>
</tr>
<tr>
<td><em>p’alu</em></td>
<td><em>p’alu</em></td>
<td>taro patch</td>
</tr>
<tr>
<td><em>bara</em></td>
<td><em>p’aro</em></td>
<td>dirt, soil</td>
</tr>
<tr>
<td><em>tanoq</em></td>
<td><em>p’eto</em></td>
<td>flat underwater rock</td>
</tr>
<tr>
<td><em>sakaRu</em></td>
<td><em>t’akau</em></td>
<td>coral lime, limestone</td>
</tr>
<tr>
<td><em>sakaRu</em></td>
<td><em>waani</em></td>
<td>ground, earth, soil</td>
</tr>
</tbody>
</table>

The Kosraen retention of *f as p is not the dominant pattern in Kosraen where loss of *f is more common (Jackson 1983:326-329). They are possibly loans.

*lape* 'k.c. clay' (PMC): KSR *lap* 'id.', PCK *lape* ‘red clay, used for caulking’: PUL *lap* (n) ‘red dye consisting of earth, used for canoes’, STW *lape* ‘red clay, used for caulking’, WOL *lape* ‘red clay, used for caulking between boards’

*maka* or perhaps *fatu-maka* ‘stones for throwing’ (PMC): KIR *maka* ‘habit of throwing stones’, PCK *fatu-maka* ‘gravel’, MRT *faw*’*u-mó*, STW *mó* ‘field for playing marbles or with small stones or shells’, CRL *faumó*, WOL *faumwage*, ULI *fas-mwag* ‘gravel’, PUA *dadimaka*, SNS *fádímaka* ‘gravel, pebble’

The form is not specifically associated with ‘sling’ in MC as it sometimes is elsewhere: POC *maka* ‘throw, sling’ > PPN *maka* ‘stone, rock; to sling, hurl’. There is also: CMARO *maka* ‘Adam’s apple’, *ma’a ‘hard’

*mat’aro* ‘mud’ (PCK): PCK *mat’aro*, MRT *méshó* ‘mud, muddy’, CHK *ma(ch)cha(ach)* ‘muddy’, PUL *merhar*, STW *merhór*, CRL *mmeschar*, WOL *masharo-*, ULI *mócor*, PUA *masalo- ‘mud’

The form is limited to Chuukic and no external cognates were found.


Ulithian has bol ‘taro patch’ but it would appear to derive from a merger of pronunciations with *palú ‘dirt, soil’ > bol ‘soil, taro patch’. It should be noted that the semantic reconstruction is biased towards the Pohnpeic/Chuukic meaning and could have been innovative at that level. The PMC form could just as well have meant ‘(kind of) taro’ as it does in Kosraen. At any rate the PMC form would have had to do with taro and its cultivation. (See discussion after following reconstruction.)

The *p'alu and *p'elu minimal pair is a very tenuous suggestion and all the forms may simply derive from a common source rather than a minimal pair. I would relate the second reconstruction to BAU benu 'refuse from food; offal' and BAU veluvelu 'in duka veluvelu, very dirty'. Possibly it is related to PEO *bwela 'dirty' > PNN *pela 'dirty (as mud); decayed'. There is also an interesting resemblance of PMC *p'alu to MAO paru 'dirt, dirty, excrement; mud', paruparu 'dirty'.

*p'aro 'flat underwater rock' (PMC): KIR b'a 'rock or ledge, continuous and solid; firm as a rock', MRS bar 'rock', PCK *perou 'beach rock': CHK piru 'beach rock', PUL porowo 'sandstone', WOL porou 'beach rock, huge flat rock', PUA polow 'beach rock'

The PCK correspondence to Kiribatese and Marshallese is irregular in the first consonant, in the first vowel, and in the addition of a final vowel. Internally, it is a rather tenuous group of correspondences but there is a strong resemblance to: PCM *baro 'flat underwater rock': LAU baro 'a flat rock in the sea', KWA balo 'flat reef stones'. I have reconstructed the same meanings for PMC and PCK based on general agreements but specifically that seen between Woleaian and Lau/Kwaio. Cognates were not encountered in other study languages. The PCM-PMC correspondence could be further evidence for Blust's (1984b) suggestion of a CM-MC group.

*p'(a,e)t'e 'coral lime, limestone' (PMC): KSR fasr 'limestone, coral lime', MOK pwooaos 'limestone', PON pweet 'lime made from coral', pwetepwet 'white', PCK *pwete 'coral lime, limestone', *pweisepewce 'white': MRT pweesh 'lime', pweshpwesh 'white', CHK pweech 'powdered lime (made by burning coral limestone', pwecha(-) 'to be white (stem)', PUL pweerh 'coral lime, as used for white dye, etc.', pwet 'to be white, as pandanus leaves for thatching', STW pweerh 'lime', pwerehevewerh 'white', CRL bweesch 'coral lime', bweeschewesch 'white', WOL beshe 'lime', ULI bec 'lime', PUA pwsse 'coral lime for betel nut'

*tano 'soil, earth, ground' (PMC): KIR tano 'sand, soil, clay, ground, land', PCK *tano 'soil, earth, ground', MRT sóón 'land that has been cleared for a house', CHK sóón 'the earth (versus heaven)(archaic)', PUL hóón 'surface, ground, floor, bottom', STW sóól 'land, soil (generic)', WOL (te)talo 'soil, earth, ground', ULI talo(p) 'earth', PUA (to)tano 'soil, earth, ground'. MRS has jene(-q) 'footprint' and KSR has sroJi 'soil', neither of which are very satisfactory candidates as cognate. PAN *tanah 'earth, land' > POC *tanoq 'earth, soil' > PCM *ano 'earth, land, ground', PPN *tano 'cemetery, grave' (J.M.): TON tano 'place of burial, cemetery', TIK tano 'grave'

*t'akau 'rock, stone' (PCMC): KIR rakai 'rock, reef, block of coral rocks', MRS dekay 'stone, rock, gravel, flint', PNG saekai 'stone', MOK sakai 'rock', PON takai 'stone, rock'

The internal evidence for this form alone suggests reconstruction to PCMC. Given PMC *sakau 'reef, reef island' it is apparent that a minimal pair had developed at about PMC times. Lack of a Kosraen cognate prevents reconstruction of the present form to PMC itself. While Kiribatese has the 'reef, block of coral rocks' sense this may be due to the emergence of homophony between this protoform and the reflex of PMC *sakau 'reef, etc.'. MC evidence other than Kiribatese suggests that the present form meant simply 'rock, stone' and didn't necessarily have a common sense relating specifically to coral. (See MC *sakau 'reef, reef island' in section 3.1 for MC synonym/near homonym and a discussion of external cognates.)
*fatu waani* ‘pumice’ (PMC): KSR *yotwen* ‘basalt’, KIR *waan*, MOK *ween*, PON *waan(pei)*, STW *wuwan*, PUA *waani* ‘pumice’, WOL *(u)waali* ‘lava rock’

All languages but Kosraen appear to have dropped the PMC *fatu* portion including Pohnpeian that appears to have added it retrospectively. From this we can also reconstruct POC or PE0 *fatu manu* ‘pumice’ > PCM *fatu manu(manu) ‘pumice’, PNP *fatu manu ‘pumice’.

### 3.6 HIGH ISLAND FEATURES

<table>
<thead>
<tr>
<th>POC or Post-POC</th>
<th>PMC or Post-PMC</th>
<th>MC Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>malo</em></td>
<td><em>malo</em></td>
<td>hollow, depression, valley</td>
</tr>
<tr>
<td></td>
<td><em>pili</em></td>
<td>moving water (river in some languages)</td>
</tr>
<tr>
<td></td>
<td><em>ppala</em></td>
<td>hill</td>
</tr>
<tr>
<td></td>
<td><em>p’aga</em></td>
<td>hole, cave</td>
</tr>
<tr>
<td></td>
<td><em>p’aro</em></td>
<td>box, container, hole, cavity (cave in some languages)</td>
</tr>
<tr>
<td><em>pupu</em></td>
<td><em>p’ulu</em></td>
<td>fall, flow (the base for river and stream in some languages)</td>
</tr>
<tr>
<td></td>
<td><em>p’uju</em></td>
<td>to fall (the base for river and waterfall)</td>
</tr>
<tr>
<td></td>
<td><em>t’uku</em></td>
<td>mountain</td>
</tr>
<tr>
<td><em>puna</em></td>
<td><em>una(una)</em></td>
<td>spring of water</td>
</tr>
<tr>
<td><em>waxo</em></td>
<td><em>wao</em></td>
<td>valley</td>
</tr>
<tr>
<td><em>solo</em></td>
<td><em>zolo</em></td>
<td>n. mountain, peak, pinnacle</td>
</tr>
<tr>
<td></td>
<td><em>lozo</em></td>
<td>v.i. appear and disappear over horizon</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tip of canoe mast (assumed to be a metathesised form of <em>zolo</em>)</td>
</tr>
</tbody>
</table>

*malо* ‘concaveness, depression, valley’ (PCMC): KIR *mano(no) ‘valley, depression, hollow, dent’, *mano ‘hollow, concave’, PON *mwoaloal ‘dent, depression’, PCK *malо ‘hollow, depression, area within armpit, elbow’: MRT *mólé(n) ‘area within elbow and armpit’, CHK *m61e(n) ‘valley’, PUL *móól ‘valley (rare), elbow joint’, STW *(lee)m61o- ‘area under arm, inside of elbow’

There is occasionally some shift of *m* to *m’*(mw) in most of these languages when the following vowel is phonemically or phonetically round (cf. Kiribatese and Pohnpeian). Attributing the ‘valley’ sense to the reconstruction is problematic as the meaning is seen only in Kiribatese and two Chuukic languages. A more conservative assessment of the protoform’s semantics would not include the ‘valley’ sense and would explain it in some living languages as an extension of the ‘concaveness, depression’ sense. The form is apparently cognate with POC *malо ‘submerge, reef, indented’ > PCM *malо: ARE maro ‘submerged coral reef’. Possibly it is related to PPN *ŋalo ‘disappear’. (See MC *wao ‘valley’ in this section.)

This is the Pohnpeian base for ‘river’. It is presented here to show that it apparently did not originate in an older form meaning ‘river’. The form contrasts internally with KSR infac ‘river, stream, creek’ for which no cognate has been identified and PCK *tanu-p'uup'uu ‘stream, river’: CHK chenupwuupwu ‘stream, river’, PUL rhaanu pwuupwu ‘river’, CRL schalubwubwu ‘waterfall, river, stream; any flowing or running (fresh) water’. No known cognates outside Chuukic. (See MC *p'ulu ‘fall, flow’ in this section.)

*p'ala (PCK) ‘hill’: MRT ppal ‘hill’, CHK ppan ‘hillside, steep slope’, STW ppan, CRL ppal ‘hill’

The form was not seen outside Chuukic and contrasts with: KSR iilig ‘hill, mound, knoll, dune’, PON dool ‘small mountain, hill’, kumwukumw ‘small hill’, ulul ‘pillow, small hill’, mmpwoampw ‘rise, low hill’. A possible MC agreement with PN is seen in that of PON kumwukumw ‘small hill’ with PPN *tumutumu ‘summit’. The correspondence of PON k to PPN *t would suggest a loan from a PN language where PPN *t had gone to k such as in Colloquial Samoan (cf. SAM tumutumu (Col. kumukumu) ‘top (of trees, hills), peak, height, zenith’). But there is no general suggestion of PN influence into Pohnpeian and the resemblance may be fortuitous.

*p'aga ‘hole, cave’ (PCMC): KIR baga ‘hole, cavern, excavation, hiding place, refuge, den, lair, net, eelpot, snare, mosquito net’, PCK *p'aga ‘hole, cave’: CHK pwaag ‘hole, cave, cavity, pit, tunnel, hollow, vagina’, pwa6e(ni) ‘make a hole or space in s.t.’, PUL - pwaag ‘hole, classifier in counting’, CRL bwaag ‘k.o. hole’, WOL (b)baga ‘crevice, small holes in arms’, PUA pwaaga ‘vagina’


PMC *r is not regularly retained in Kiribatese. The Chuukic semantics are limited to ‘box’ but the other cognates have fairly definite ‘container’ notions that are extended to the physical environment. Pohnpeian alone appears to have extended the general ‘enclosure’ sense to caves. (See MC *p'aga immediately above.)


PCK is seen as irregularly losing PMC *l but possible external cognates are consistent with the PCK rather than the PMC: POC *pupu ‘leak, drip, spill out’, PPN *puupuu ‘rise the mouth, gargle’.

*p'ugu ‘fall, as rain or a person (there is also, commonly, a ‘breaking waves’ sense)’ (PCMC): KIR buq ‘going down, descending,’ MRS big ‘fall’, big’(n’ew) ‘breaking waves, high surf’, MOK pwug ‘break, sound of breaking waves’, PON (koro)pwug ‘small waterfall’, pwugidek ‘break, of waves, splash (Vi), pwugu(show) ‘rainfall’, ppūgū(n) ‘surf’, CHK pūgū
'fall, as rain or as on a slippery surface', \( \text{pūgū}(\text{tiw}) \) 'fall down', \( \text{PUL} \ \text{pūgū}(\text{tiw}) \) 'fall down', 
\( \text{pūgūpūgū} \) 'to break, of waves', \( \text{STW} \ \text{pūgū} \) 'to fall, to rain (Vij)', \( \text{pūgūtiw} \) 'fall down', 
\( \text{pūgūpūgū} \) 'breaking waves, surf', \( \text{CRL} \ \text{pūgū} \) 'fall, trip', \( \text{pūgūtiw} \) 'fall down', \( \text{pu̯gū(šow)} \) 'to rain', 
\( \text{pūgūpūgū} \) 'falling (as a teetering object/person), pattering (as rain)', 
\( \text{pwpwu̯gwpwu̯g} \) 'the sound of breaking waves', \( \text{WOL} \ (p)pūgū- \) 'to fall, drop, come down suddenly', 
\( \text{ULI} \ (p)pūgū 'fall', \( \text{PUA} \ \text{pūgū} \) 'fall, make a sound', \( \text{SNS} \ \text{pūgū} \) 'fall'

It seems that this root came into PCK with a reinterpretation of PMC \*p' as \*p. In addition to the 'breaking waves' meanings one can note the use of the root in a word for 'small waterfall' in Pohnpeian.

\*t'uku (PCK) 'mountain': \( \text{MRT} \ \text{shuuk} \), \( \text{CHK} \ \text{chuuk} \), \( \text{chu̯a} \)-, \( \text{PUL} \ \text{r'uu} \), \( \text{rhuuk} \), \( \text{CHU} \ \text{chuuk} \), \( \text{chu̯a} \)-, \( \text{STW} \ \text{r'uu} \), \( \text{rhuuk} \), \( \text{rhuku-} \), \( \text{WOL} \ \text{shugu} \), \( \text{ULI} \ \text{cugu} \), \( \text{SNS} \ \text{duku} \) 'mountain'

There is also the use of \*t'uku as a placename for the Chuuk lagoon and the correspondences are regular through Chuukic. However, they seem to be loans into the non-Chuukic that use it: \( \text{MRS} \ \text{riq} \), \( \text{KSR} \ \text{ruk} \), \( \text{MOK} \ \text{ruk} \) 'Chuuk; to hide'. Jackson (1983) suggests that the aggressive navigators of the PUL-PLP-PSK area may be responsible for the non-Chuukic pronunciations as \( \text{rh} \) is the common reflex of \*t' in these languages. The Chuukese definition includes verbal senses of 'heaping' and 'piling' and 'heaped up' or 'piled up'. Perhaps a cognate external to Chuukic will eventually emerge with those general meanings. (See MC \*zolo 'mountain' in this section.)

\*una(una) 'spring of water' (PMC): \( \text{KSR} \ \text{unohn} \) 'spring, well'. KSR seems to correspond (with reduplication) to \( \text{PPN} \ \text{pu̯na} \) 'bubble or well up (of water); a spring'. From this we can reconstruct \( \text{POC or PEO} \ (b,p)una \) 'spring, well'. PCM has \*fura 'spring' which corresponds irregularly to PCM and PPN in the second consonant. MC has the following non-cognate forms: \( \text{MRS} \ \text{hayēbēj} \) 'rain water, a well, drinking water', \( \text{PON} \ \text{pwoarukus} \) 'spring of water', \( \text{Pwarer} \) 'well, spring', \( \text{CHK} \ \text{misiwi} \), \( \text{mīrō} \) 'spring (of water)', \( \text{PUL} \ \text{limerōr} \) 'brackish water spring believed connected with the sea', \( \text{CRL} \ \text{bwatch} \) 'spring or other place fresh water surfaces'  

Puluwatese seems to be related irregularly to Chuukese. Possibly \( \text{KSR} \ \text{unohn} \) 'spring of water' is related to: \( \text{KIR} \ \text{un} \) 'the principal or central root', \( \text{MRS} \ \text{win} \) 'base; basis; root; reason; purpose; cause; problem; arithmetic; motive; source; lower part of a tree, brush, or grass', \( \text{MOK} \ \text{win} \) 'tree sp.', \( \text{CHK} \ \text{wūnūn} \) 'aerial root of the mangrove; rope used to pull a tree in a desired direction when chopping it down; a vine (\text{Derris elliptica}) (it is used as a rope to haul logs and as fish poison) (\text{wūna-})', \( \text{PUL} \ \text{wun} \) 'to be poisonous'. The forms, especially Kiribatese and Marshallese, seem related and there seems no potential Kosraen cognate other than that currently under discussion.

\*wao 'valley' (PMC): \( \text{PON} \ \text{waaw} \) 'valley'

The form is not otherwise known in MC but is similar to KWA wa'o 'valley' which would have come from a PCM \*waxo. There are many words for 'valley' amongst the languages spoken on islands where valleys exist. The resemblance could be fortuitous and this is a very weak reconstruction. (See MC \*malo 'concaveness, depression, valley' in this section for discussion of 'valley' in the study languages.)

\*zolo 'mountain, peak, pinnacle' (PMC): \( \text{MRS} \ \text{tel} \) 'hill, mountain', \( \text{KRS} \ \text{ohl} \), \( \text{PNG} \ \text{dol} \), \( \text{MOK} \ \text{dol} \) 'mountain', \( \text{PON} \ \text{dool} \) 'small mountain, hill', \( \text{PCK} \ *\text{zolo} \) 'peak, pinnacle, tip (of mast, mountain, etc.)': \( \text{MRT} \ \text{tool} \) 'top of mast, peak, pinnacle', \( \text{CHK} \ \text{toon} \) 'peak, pinnacle; extension of a mast; visible, discernible, prominent', \( \text{toon} \) 'Ton island – highest peak (\text{tonen}
PROTO MICRONESIAN TERMS FOR THE PHYSICAL ENVIRONMENT

 Chuuk)
 PUL tolo' 'top section of mast', STW tool 'height of sun', tolo 'mountain', CRL tool 'objective, end; the time or height of the sun; the distance from one place to another', tolo 'tip, end'. *zolo '(v.i.) to disappear (PWMC): MRS tel' '(Vi.) to disappear, die out, become extinct'; PCK *solo '(Vi.) disappear from sight, esp. below horizon': CHK ton 'Vi., adj. (be) visible, discernible, viewed; prominent', tononō 'fade from being visible', tonoto 'become visible, become more visible', PUL tol 'to disappear', tolo(lō) 'setting position (of stars)', tolo(lō) 'disappear, set', STW tol 'disappear from sight', CRL tolo(lō), tolo(lō) 'to disappear (in ref. to things crossing horizon)', tolo(to) 'to appear (in ref. to things crossing horizon)', WOL tolo 'to disappear, submerge, go out of sight, vanish, die away', ULI dél 'disappear'; *lozō 'top of mast (PMC): MRS l'et 'id.', KSR loo 'top, tip, apex (of a tree)', MOK lod 'id.', MRT lou(gan) 'top of something high', PUL loot 'top section of mast'

In PMC-B *lozo is considered a metathesised form of *zolo. The verb may have had more of the Chuukese sense of 'in and out of sight' and been disambiguated by use of the directionals. POC *solo 'mountain, highlands, interior': PCM *tolo 'mountainous interior', PCP *colo 'inland country, mountain country'.

3.7 NAMED LAND (USE) AREAS

<table>
<thead>
<tr>
<th>POC</th>
<th>PMC</th>
<th>MC Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>or Post-POC</td>
<td>or Post-PMC</td>
<td></td>
</tr>
<tr>
<td>*jalan</td>
<td>*ala</td>
<td>path, trail, road</td>
</tr>
<tr>
<td></td>
<td>*maata</td>
<td>clearing, open place</td>
</tr>
<tr>
<td>*mwalala</td>
<td>*mala</td>
<td>cleared area, to clear land</td>
</tr>
<tr>
<td></td>
<td>*m'at'a</td>
<td>garden, farm</td>
</tr>
<tr>
<td>*rata(R)</td>
<td>*rata</td>
<td>cleared land</td>
</tr>
<tr>
<td></td>
<td>*tap'o</td>
<td>village, place, land, spot</td>
</tr>
<tr>
<td>*qutan</td>
<td>*uta</td>
<td>interior, inland</td>
</tr>
<tr>
<td></td>
<td>*walu</td>
<td>forest, woods, bush area</td>
</tr>
</tbody>
</table>

*ala 'path, trail, road' (PMC): MRS (yi)yal, PNG al, MOK al, PON aal, NGK aal, PCK *ala: MRT, CHK ana-, PUL yaal, STW yaan, CRL ala-, WOL yala, ULI yaal, PUA yaana, SNS yaara 'id.'

PMC is assumed to have lost the initial consonant of POC even though Kiribatese and Kosraen cognates are unknown. Perhaps there was PMC *jala. PAN *zalan > POC *jalan 'path, trail, road' > PCM *tala 'path, road', PCP *zala 'path, road'.

*maata 'clearing, open place' (PMC): MRS mahaj 'cleared space, open field, pasture (and mel'ahaj)', KSR mwes 'shallow place in the reef', PCK *maata 'farm, clearing', STW maat 'farm', CRL maat 'farm, fields, land cleared as farmstead', WOL maata 'farm, garden', PUA maata 'garden, property, taro patch', SNS maat 'garden'. The Kosraen semantics are distinct from the others but the form is phonologically regular and the reduplicated form below shows a clear semantic relation to the others; *maataata 'clearing, open space' (PMC): KIR maataata 'cleared space', MRS (ke)mahaj(ey) 'to clear land (v.t.)', KSR (ahk)mwesis(ye) 'clean, cultivate, clear land', MOK maajaj 'well kept, cleared, not overgrown', PON maasaas 'cleared of vegetation'
*mala* 'to clear, cleared area' (PMC): MRS *mel'a(haj) 'open space, field, pasture, outdoors (also *mel'an 'land surface, surroundings, environment')*, KSR (i)mac(i) 'v.t. clear, farm, cultivate, n. a farm', MOK *mal 'barren field', PCK *malasi-i* 'v.t. clear of brush'; MRT (lee)mal 'land', malete 'v.t. clear land', PUL *mâletiy* 'v.t. to clear, as a garden', STW mâletiy 'to clear brush', CRL mâletiy 'to clear brush at the farm', WOL malatii 'clear it, remove obstacles'. KSR does not normally lose *l* but the semantic fit is good; *malala* 'cleared ground' (PWMC): MRS *mel'al'* 'id.', PON *mâll* 'clearing, open grassy area', PCK *malala* 'cleared area' (PMC): MRS *mel'a(haj) 'open space, field, pasture, outdoors (also *mel'an 'land surface, surroundings, environment')*, KSR (i)mac(i) 'v.t. clear, farm, cultivate, n. a farm', MOK *mal 'barren field', PCK *malasi-i* 'v.t. clear of brush'; MRT (lee)mal 'land', malete 'v.t. clear land', PUL *mâletiy* 'v.t. to clear, as a garden', STW mâletiy 'to clear brush', CRL mâletiy 'to clear brush at the farm', WOL malatii 'clear it, remove obstacles'. KSR does not normally lose *l* but the semantic fit is good; *malala* 'cleared ground': STW *melaal* 'id.', WOL *melaalu* 'field'. The third consonant of Woleaian and the vowel length of PCK are irregular; *malalama* (PCK) 'cleared land', CHK (a)mamamama 'v.t. clear land of vegetation', mánámán 'n. place of habitation, inhabited place', PUL mâlemâl 'to be clear of brush, clear space', CRL mâlemâl 'to clear brush, to be cleared of brush', WOL mâlemâl 'to be cleared, clear'

This form appears to have been reinterpreted in much of Chuukic as *male-* , probably due to vowel assimilations associated with the common transitive *malasi*. These forms would seem related to the POC *malala* 'cleared ground' reconstruction as well as PCM *lala* 'clear space, clear ground; public common'. It would appear there was PPN, PNP *malage* 'meeting place, village common' as well as PNP *maala* 'cultivated field' which is more similar to the present form.

*m'at'a* 'garden, farm' (PWMC): MRS *(je)m'ade(n)' 'wasteland', MOK *mwoas(wel)' 'vegetable garden', PON mwaat 'clearing, field, plantation, farm' See MC *maata* above for which the evidence is pretty well in complementary distribution. There is a resemblance to CM-ARO mwatake 'clear, free of weeds' but no other similarity was encountered in the study languages.

*rata* 'cleared land, laid out area' (PMC): KIR *ata* 'width of land, material, mat, house, etc. (large)', PON *raas* 'place where an earth oven is made', PCK *rata* 'cleared land':, MRT *raas* 'cleared land', WOL *rata* 'field, clear land'

The reconstructed meaning is somewhat biased towards PCK and compares with: PAN *dataR* 'level, flat' > POC *rata(R) 'level, smooth' > PCM *dada* 'level, smooth'.

*tap'o* 'village, place, land, spot' (PCMC): KIR *tabo* 'place, spot, locality, position', MRS *jabe(n) 'point of land, corner', MOK *japw 'land, island', PON *saapw 'land, farmstead, homestead', PCK *tap'o* 'village': MRT *sóópwu-, CHK *sóópw-, PUL *hóópw, STW *sóópw, *sóópo- 'village', CRL *sóóbw, *sóóbo-*, WOL *tabo-, sabo 'village, district'

The form is homophonous with PMC *tap'o* 'end, part, half, extremity'. No certain external cognates were encountered.

*uta* 'interior of an island, inland' (PMC): MRS *(yiye)wéj* 'interior of an island', KSR wuct 'inland, towards inland', MOK *(e)wéj 'inland (presumably, the Mokilese is a Marshallese loan, cf. Rehg & Bender 1990); PAN *qutan > POC *quata(n) 'inland' > PCM *uta* 'pith or heart of something', PCP *uta: PPN *quta 'inland'

*walu* 'forest, woods, bush area' (PPCK): PNG *wael* 'forest, woods', MOK *woal* 'forest', PON *waal* 'forest, jungle', PCK *waló* 'forest, woods, bush': CHK wénú- 'bush, vegetation generally', PUL *waali*- 'forest, jungle', WOL *waló* 'forest, bush, woods'.

*waluwalu* (PCK) 'forest, woods, bushy area': MRT *waliwel* 'forest', CHK wénúwén
'vegetation, uncultivated bush; to be overgrown', PUL walūwal 'plant, tree, forest; to be forested', STW waniwan 'plant, forest', CRL wahūwal 'forest, wild land', ULI waluwal 'forest, plant, bush', PUA wonuwon 'forest, bush'

The evidence is exclusively from Pohnpeic-Chuukic. It would appear that the reduplicated form became the common usage through Chuukic at about the time of PCK itself. (See MC *uta below for comparison to PAN *quta(n) > POC *quta 'forest'.)

3.8 DIRECTIONS

<table>
<thead>
<tr>
<th>POC or Post-POC</th>
<th>PMC or Post-PMC</th>
<th>MC gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ara</td>
<td>*ara</td>
<td>south</td>
</tr>
<tr>
<td>*atas</td>
<td>*ata</td>
<td>up, high, top, summit, east</td>
</tr>
<tr>
<td>*auru</td>
<td>*auru</td>
<td>south</td>
</tr>
<tr>
<td>*faqi</td>
<td>*Josowwa</td>
<td>west</td>
</tr>
<tr>
<td>*faste</td>
<td>*sake</td>
<td>up(wards), east(wards)</td>
</tr>
<tr>
<td>*sipoi</td>
<td>*sio</td>
<td>down(wards), west(wards)</td>
</tr>
</tbody>
</table>

*ara 'south' (PMC): MRT -ar, STW -ar, WOL -ara, PUA -ala 'id.'

This would be PCK at best but external evidence is seen in: PCM *ara 'south wind'. In MC the form occurs in compounds meaning 'south-west' (see MC *josowwa in this section). Possibly the PCM is from POC *apaRa 'NW monsoon'; see MC *para(ata) 'tradewind' in section 3.2.

*atas 'up, high, top, summit, east' (PMC): KIR eta 'up, on high, above, top, upper, heavens', KSR yat 'eastern part of a village', PCK *ata 'top, up, on land, east': MRT (yēerū-nee)yas 'SSE wind', CHK asa-, PUL (ye)yah 'to be easterly', STW (yēerū-lee)yas 'SSE wind', yat 'up, top', CRL -as 'up, high (in cmpds)', WOL -yasa 'up, upside', yat 'up, top', ULI yat, PUA -yasa 'up'; PAN and POC *atas 'top, above' > WAY ata 'top, above, the top', PPN *ata 'dawn'

*auro 'south' (PMC): KSR acir 'north', PNG (pali)ejir, (pali)aeir, PON (pali)ejir, PCK *aurū, PUL yeér 'at the south, to be the south wind', STW yeér, CRL éer, WOL (i)yeűrű, ULI (i)ér 'south'

This seems a cognate of PCM *auru 'west': ARO auru 'west, down, the west', uru 'the west'. I reconstruct PCM 'south' in spite of the Kosraen evidence due to the proposed contrast with PWMC *faqi 'north'. I reconstruct PCM 'west' simply on the basis of Arosi. If external cognates outside CM are not identified, this could be taken as support for Blust's (1984b) suggestion of a CM-MC subgroup. Wayan Fijian has aalu 'to face in a certain direction' but it has a long initial vowel and reflects POC *l rather than *r.

*faqi 'north' (PCMC): KIR (me)aani 'north wind (Goodenough)', MRS yagi- 'north', KSR (e)paaj 'south', PON (e)pej, PCK *(e)faqi: MRT efēŋ, CHK efēŋ, PUL yefāŋ, STW effāŋ, CRL efāŋ, WOL -faqi, ULI (yi)faq, PUA (ie)faq, SNS (yiye)faqi 'north'

The Kosraen retention of *f and its initial vowel increment suggest a loan from Pohnpeic or Chuukic (Jackson 1983:329-330). (See MC *faqi 'dry season, winter' in section 3.2.) External cognates are not presently known.
*losowa* ‘west’ (PMC): KSR rohtoh, PCK *losowa, MRT lotowa-, CHK notow, PUL lotow, STW lotow, WOL letowa, ULI lodow, PUA (i)notoa ‘west’

Kosraen typically reflects PMC *1as 1 and has a tendency to reflect PMC *ras 1 as well. Thus this is an unusual agreement for which we have no loan hypothesis. The form was not encountered outside MC. (See MC *sio ‘down(words), west(words)’ in this section.)


### 3.9 MISCELLANEOUS

<table>
<thead>
<tr>
<th>OC</th>
<th>MC</th>
<th>MC Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>qasu</em></td>
<td><em>asu</em></td>
<td>smoke</td>
</tr>
<tr>
<td></td>
<td><em>falaña</em></td>
<td>ashes</td>
</tr>
<tr>
<td><em>lubwa</em></td>
<td><em>lip’a</em></td>
<td>hole in ground, pit, excavation, grave</td>
</tr>
<tr>
<td><em>maluRu</em></td>
<td><em>luru</em></td>
<td>shade</td>
</tr>
<tr>
<td><em>nunu</em></td>
<td><em>jenu</em></td>
<td>shadow</td>
</tr>
<tr>
<td></td>
<td><em>peata</em></td>
<td>ashes, hearth</td>
</tr>
<tr>
<td></td>
<td><em>p’u(rako)</em></td>
<td>smoke, dust, powder, fog</td>
</tr>
</tbody>
</table>


The form reconstructs only to PPCK and its meaning at that level is uncertain. (See MC *peata ‘ashes for external comparisons.)

Possibly there is a CM cognate in LAU likwa 'a hole, cavity in a tree'.

*lu 'shade' (PMC): KIR nuu 'shade, shadow, outline', MRS *lir 'shade', KSR *lul 'shade, shadow', MOK *rir 'shaded', PCK *nurū 'shade': MRT nūr 'shade', CHK (n)nūr 'be shaded, shady', PUL nēer 'shade', CRL (l)lur 'shaded, be shady', WOL (n)nūr 'shady, shaded', PUA rūlū 'shade, shelter' (PCK irregularly saw PMC *l > n. The PUL vowel is irregular.) PEMP *maluRu > POC *maluRu 'shade' > PCM *malu 'shade', PCP *malu 'shade'


Possibly a variation of: POC *nunu 'shadow, reflection' > PCM *nunu 'shadow, shade'.

*peata 'ashes, hearth' (PMC): MRS (wi)pahaj 'fireplace, ashes', KSR (a)pact, PNG paeaes 'ashes', MOK paoaaj 'hearth, cooking area', PON pees, NGK pees 'ashes', PCK *peata 'hearth ashes': MRT peyās 'ashes (from fireplace)', PUL peyah 'ashes', WOL peyasa 'ashes (archaic)'

*p'urako) 'smoke' (PCMC): KIR (bu)bu 'smoke, dust, powder, fog', PCK *p'urako 'smoke': PUL p'urōk 'to emit smoke', STW pwurōk, CRL bwurōgh, WOL buraagō-, ULI borag, PUA pwuloko, SNS bwulogo 'smoke'

(See MC *asu 'smoke' in this section.)

4. CONCLUSIONS

In the foregoing etymologies we can generally observe that the more minimal the semantic concept, the less likely was change. Extremely basic concepts such as 'night', 'day', 'sky' and 'sea' changed hardly at all. Addition of complexity in the semantic notion generally decreased the historical stability of the associated words. Thus 'darkness of night' was more stable than 'sun' or 'moon', because the latter were sources which emitted something (i.e. light). The noun for the source was occasionally confused with the noun for the light it emitted or verbs for its shining.

Perhaps 'sea water' had more stable etymologies than 'sea, ocean' because the former was a basic, universal notion while the latter meant different things to people in different geographical situations. And 'sea water' may have had more stable etymologies than 'fresh water' because of the former having a single invariable source, the latter having many (rain, rivers, wells, puddles) each with its own characteristics. Distinctness and minimalness of semantic notion are characteristics of the more stable forms.

A second source of variation was certainly the commonness of the referent. 'Wind' and 'rain' were profoundly conservative compared to 'typhoon' and 'waterspout' etymologies. Even 'rainbow' had a great variety of forms through the study languages.

A third source of variation was a dimension best characterised as 'usefulness'. Thus 'low tide' had a single etymology through most of the study languages while 'high tide' was extremely diverse, the former being a time of fishing and gathering, the latter being a time of
marginal economic utility. Low tide is also commonly a distinct moment while high tide is not. During low tide the whole lagoon can go dead still for about an hour while the high tide is marked by an irregular pounding surf whose height varies through a longer period of time according to wind and changes in the source wave pattern in addition to the general height of the sea and whether it is still coming in or has started to go out.

Another phenomenon encountered was absorption of an extensive semantic complex by one word from another. This was apparently the case in relation to POC *wai(r) and *dranum which must both be reconstructed generally as ‘fresh water’. For both PMC *t'anu and PCM and PCP *wai we can reconstruct an extensive set of subsidiary meanings including ‘liquid, fluid, moisture, sap, juice, liquid discharge from the body’. In PCM the POC *dranum word seems to have concerned moving water about (e.g. ‘bailing’) and in PCP it had to do with rinsing salt from the body and the water used for that purpose. Whether PMC or PCM and PCP innovated cannot be suggested with any certainty from the present study, but it seems that one took the whole semantic complex of the other.

To discuss what we might learn about Micronesian culture history, we might first consider the internal development of PMC *sakau ‘reef, shoal, reef island’. The form has similar meanings externally but within MC it came to mean ‘(small) island’ in Chuukic and is the principal word for ‘island, atoll’ in Kosraen and Pohnpeic. This is otherwise unknown for the study languages and apparently reflects the extension of the older ‘reef’ meaning to atolls (reef islands) and then to high islands in Kosraean and Pohnpeic (apparently after the departure of the Pre-Chuukese who retained the ‘reef, reef island’ sense and still called ‘land, island’ by reflexes of PMC *tanua).

The comparison of high island (versus atoll) referent vocabularies (section 3.6) turned out to be quite interesting. Micronesianists (e.g. Bender et al. 1990) have long been aware of the PMC *zolo ‘mountain, peak, pinnacle’ etymology and wondered why such terms as ‘valley’, ‘stream, river’, ‘cliff’ and other high island referents could not be reconstructed to PMC. We wondered if PMC was spoken on atolls and if PMC *zolo (which continues POC *so10 ‘mountains, highlands, interior’) may simply have been remembered in chants or other oral literature and been reapplied to their own environment once high islands were discovered.

The problem was compounded by the possibility of the verbal sense of *zolo having existed in PMC as it does in many living languages. The verb normally has a sense of ‘things breaking the horizon at sea’ and could easily have been reapplied as a noun to the first thing breaking the horizon on a high island. Additionally, there is an apparent metathesised form reconstructable to PMC *lozo ‘top of mast’. As the single high island referent reconstructable to PMC it presented several layers of problems in interpretation.

The present work has established that neither PCM nor PCP allow for much in the way of reconstructing etyma concerning the interior, relief and their features. Where evidence is available, the archaeology of the time period concerned describes coastal populations not terribly interested in settling island interiors. So the phenomenon we have long observed for PMC turns out to be somewhat true for PCM and PCP as well: languages of that general age seem not to have well-established terminologies for the interior physiographic phenomena we were wondering about for PMC.

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2 PCP and PMC were apparently breaking apart in the early first millennium BC. The disintegration of PCM may have been somewhat later or may have proceeded more slowly.
The situation differed in PPN. Quite a variety of high island terms are reconstructable for that language and have continued very broadly into the living languages (Pawley & K. Green 1971; Biggs n.d.). I would suggest that the interiors of islands had come to mean more to the PPN speakers than they did to speakers of PCP or PCM. I would therefore suggest that our dearth of PMC etyma with high island physiographic referents is less significant than we have long suspected.

Another finding of the present study is that MC languages have a previously unrecognised cognate in this domain in the agreement of KSR unohn ‘spring, well’ with PPN *punay ‘spring, well’. There are horizontal seepage wells dug into the freshwater lenses of atolls but there are no springs and no Micronesian atoll language uses a cognate of the present form to name their seepage wells.

Thus the results of the present work both expand the reconstruction of high island referents for PMC to two and relieve us of some pressure to keep producing more. It seems we now have gone from an ambiguous situation with the linguistic evidence slightly favouring an atoll homeland or atoll filter on the way to the homeland to a situation where we are developing reason to believe high islands were at least part of the overall environment where PMC or its dialects were spoken, and that they applied at least some POC terms to high island features.

We need to look at plants, continuities in their vocabularies and which plants cannot be grown on atolls. But that is work for another day. For the moment we can note that POC terms for ‘fruit bat’ (POC *beka > PMC *p'eka) and ‘freshwater eel’ (POC *tuna > PMC *tuna) appear to have continued into PMC. These two faunal species are fairly well restricted to high island environments. Pohnpeian does not continue the POC terms for ‘spring of fresh water’ or ‘freshwater eel’ as does Kosraen, even though both exist on Pohnpei. The freshwater eel is an object of religious significance on Pohnpei. Its name could have been changed by speech taboos or other social behaviour over the years.

We might also note the lack of PAN *danaw > POC *dano ‘lake’ cognates in MC. There are no lakes where MC languages were spoken at the time of European contact and MC cognates extended to other parts of the environment have not been identified. Similarly, reflexes of POC *wair ‘stream, river’ are not presently known in MC. Pohnpei has substantial streams or rivers but Kosrae and Chuuk do not.

Green (1981, 1987) has argued that PPN was spoken over a large area including at least Tonga and Samoa. Kosrae is a tougher voyage to or from the Marshall Islands/Kiribati than voyages around the Tonga/Samoa area. A continuous language through the Kosrae-Pingelap-Mokil-Pohnpei area would be more plausible in terms of geography and voyaging. But the linguistic evidence does not support such a scenario as it relates to maintenance of a single language. Kosraean and Pohnpeian seem to have no special relationship within MC except through borrowing.

Whatever geographical spread PMC attained before it began to break down, it now seems more likely that the speakers knew of a high island such as Kosrae or Pohnpei, that some of the speakers resided on one of them and that they remembered and applied some POC terms to its physiographic features and fauna. The most simple explanation for the continuation of POC terms into PMC would be that a high island was first encountered or was encountered soon after the discovery of eastern Micronesia. But this is not the only possible scenario. The terms could have been retained in the cultural memory on atolls and applied to high island
referents upon re-encountering them. It is also possible that the terms could have been forgotten in Pre-Micronesian but reintroduced through continuing immigration from Melanesia.

This review of terminologies for the physical environment produced supporting evidence for Blust’s (1984b) suggestion of a special relationship between CM and MC. That evidence can be seen in the discussions of PMC *alo ‘sun’ in section 3.1, *nana ‘yesterday’ in section 3.3, *p’aro ‘flat underwater rock’ in section 3.5 and *ara ‘south’ as well as *auru ‘south’ in section 3.8. Some of it may need to be dismissed upon wider comparison with OC languages not considered in the present work but the apparent phonological, morphophonemic and semantic innovations shared are of the same general type utilised in defining other OC subgroups.

A thorough study of MC plant names and their internal and external relations would be the next logical comparative linguistic project in a continuing research program for Micronesia. And the behaviour of MC terms should be compared to CM and CP or some other well-documented control groups. A striking finding in the present work was the similarity in behaviours for vocabularies at the PCM and PCP levels to PMC with respect to high island referent terminologies. Possibly there will be unexpected results in a thorough plant name study as well.
EARLY AUSTRONESIAN TERMS FOR CANOE PARTS AND SEAFARING

ANDREW PAWLEY AND MEDINA PAWLEY

1. INTRODUCTION

1.1 QUESTIONS

Between 3000 and 1000 BC speakers of Austronesian (AN) languages spread across Island Southeast Asia and western Melanesia and into the previously uninhabited islands of the Central Pacific. By about 1000 AD they had colonised the whole of Polynesia and Micronesia and had settled Madagascar, more than half a world away. This far-flung maritime dispersal of closely related peoples, without parallel in human history until the Western European expansion of the fifteenth to twentieth centuries AD, must have been based on a fairly efficient sailing technology. What was this technology? When and where did it develop? To what extent was it modified during the AN diaspora?

There is already an extensive literature on these questions, much of it by culture historians who apply the typological comparative and distributional methods (discussed in section 1.2) to sailing craft and sailing techniques. Our contribution will be to see what light can be thrown on these questions by comparing the vocabulary for watercraft and seafaring across the AN family, using the genetic comparative method of historical linguistics. We will focus on the early phases of AN expansion, that is, on cognate sets that probably go back more than 2,000 years. Little will be said here about the complex developments in boat-building which have taken place in Island Southeast Asia over the last couple of millennia, well after the main AN dispersal across and beyond this region, or about modifications in the design of craft that, according to Haddon and Hornell (1936-38), have taken place in various regions of Oceania within the last millennium. An exhaustive study of material relevant to reconstructing terms for vessel design and seafaring at all stages in the history of the AN family would take several years and fill a very large book.

1.2 RECONSTRUCTIONS BASED ON COMPARATIVE TYPOLOGY: METHODOLOGICAL PROBLEMS

Describing the sailing craft and navigation techniques in the Indo-Pacific region, and theorising about their origins and development have been popular pastimes among Western

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1 We are grateful to many colleagues for help. Robert Blust, Charles Grimes, Ric Jackson, Jeff Marck and Bernd Nothofer provided corrections to many points of detail as well as additional evidence. Sander Adelaar, Wal Ambrose, Mark Donohue, Paul Geraghty, Geoff Irwin, Alan Jones, Nigel Oram, Lawrence Reid and Malcolm Ross also offered valuable comments or data.


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scholars since the first European explorers visited the region. The fairly close correlation between the distribution of outrigger canoes and that of the AN language family has not escaped the attention of culture historians.

Those writers who have drawn conclusions about the nature of early Austronesian sailing craft and navigation have generally relied on the ‘typological comparative method’ of historical reconstruction. The typological method is a theory of structural types, making assumptions about how structural features are linked in systems, what kinds of changes are possible or likely, which types are logically prior to others, etc. The kinds of historical inferences this method can give, when applied to a range of contemporary systems, are probabilistic ones: for example, the inference that type X is more likely to have given rise to type Y than vice versa. The typological method is often allied to a distributional one. The assumption is that one can infer much about the antiquity of a given structural type or feature from its geographic distribution. For instance, the observation that a certain complex of cultural features is found among widely scattered peoples speaking related languages can be taken as evidence that the complex was present in a common ancestral culture. On the other hand, if such a complex has a more restricted but continuous geographic distribution it is likely to have been an innovation that diffused over this region after the dispersal of the ancestral population.

In his Sailing craft of Indonesia (1986) Adrian Horridge employs a distributional argument when he writes:

The very wide distribution of their homogeneous cultural heritage shows that [the ancestral Malayo-Polynesians] had an excellent knowledge of outrigger canoes for transporting fire, family, pigs, chickens and dogs, not to mention dozens of useful plants, by sea. (pp.2-3)

Other passages in the same book present some fairly detailed conclusions about the design of the vessels. These are based partly on the logic of technology – what is possible and what is likely in the development of techniques, given certain equipment and natural resources, engineering knowledge, navigational knowledge, climatic conditions, etc. – and partly on distributional grounds.

The signs are that the original Malayo-Polynesian rig was a two-boom triangular sail fixed by the point (tack) in the bows of the boat and held up by a loose prop, with a rope to the outriggers to prevent it falling sideways. (p.56)

All Malayo-Polynesian rigs therefore had the fundamental property that the sail could be tilted fore and aft to balance the sail with reference to the balance of the hull and load on the steering paddle. In principle they could all be steered like a windsurfer, simply by tilting the sail fore and aft. These rigs, like the outrigger canoes for which they were adapted, were invented in Island South-East Asia,

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4 Horridge recognises the distinction that linguists now usually make between ‘Austronesian’, as the name of the entire language family, and ‘Malayo-Polynesian’, as the name for a putative subgroup that includes all Austronesian languages except those of Formosa.
and spread with the Malayo-Polynesian expansion, although they may have been known in Indonesia before that time. (p.58)

The idea of a boat built from sewn planks was known to the Polynesian migrants into the Pacific, and perhaps came from mainland Asia before 5000 BC, but the idea of fixing the planks edge-to-edge with dowels seems to have spread later from the mainland, with the same distribution as the use of metal for boat-building tools... All the techniques needed to make a lashed-lug boat, sewn of course, were known to the earliest Polynesians, and the projecting lugs carved in situ are a feature of many traditional Polynesian, Micronesian and Melanesian boats. (pp.57-58)

In the following passage, Horridge combines structural and distributional arguments with archaeological evidence:

The earliest evidence of trading by boats that could beat against the wind is provided by pottery with a particular design, known as Lapita, that spread rapidly from Western Melanesia far into what is now Polynesia about 3000 years ago. The vessels carrying the potters were probably double canoes because nothing else in the region is sufficiently seaworthy. (p.4)

The strength of technology-based comparative studies is in the detailed historical inferences concerning design and construction which they yield. That is not to say such inferences are necessarily reliable. There are some serious methodological weaknesses associated with all reconstructions based purely on the logic of types and the distributional method.

Because innovations in material culture sometimes spread and replace older usages and because some innovations are made independently in different places, the widespread geographic distribution of a feature or even a complex of features does not guarantee its great antiquity. Nor does the restricted distribution of a feature guarantee that it is a recent innovation. The method of comparative typology is unable to distinguish in a reliable way between ‘inherited’ and ‘borrowed’ elements or features within a continuing community or cultural tradition, that is, between institutions which have been handed down from generation to generation within the community or tradition since a given point in time and institutions that have entered the tradition from outside since that point in time. The method is also unable to distinguish reliably between ‘retentions’ and ‘innovations’ within the same tradition, that is, between features that have been part of a tradition since a given point in time and those that were developed later.

In Indonesia and contiguous regions of Island Southeast Asia the problems of distinguishing retentions, innovations and borrowings in sailing technology are particularly acute. There the local sailing traditions of AN-speaking communities have not only diversified and influenced one another but have been exposed to numerous alien traditions coming from mainland Asia. Horridge acknowledges this point:

The Malayo-Polynesians diversified as they spread, and from them are descended the specialized boat-building and boat-loving maritime groups of Indonesia, namely the Bajau or Sea Gypsies, the Buginese from the Gulf of Bone, the Makassarese, the Mandar people from West Sulawesi, and the Butungese from South-east Sulawesi, and the Madurese...[and] the fishermen of
the islands of Bawean, Masalembu and Sepudi in the Java Sea, the traders of Bonerate and Pulau Palu'e in the Flores Sea, the whalers of Lamalerap on Lomblen in the Timor Straits, the men of Luang in the Barat Daya Islands, and the numerous Buginese colonies which control a wide network of trade in miscellaneous goods. All these very diverse groups have inherited the Malayo-Polynesian seafaring tradition, and methods of building outrigger canoes which over the past two millenia have been mixed with traditions from the Indian Ocean and the West to give the modern hotch-potch of boat and canoe styles. (pp.3-4; italics ours, AP & MP)

Horridge's remarks remind us that the testimony of central Pacific cultures is likely to be crucial in reconstructing early AN sailing technology. The relative isolation of the peoples of the more remote Pacific islands may have allowed some of them to continue the early AN sailing culture with fewer changes than most peoples in Island Southeast Asia.

A problem arises when students of comparative technology dabble in comparative linguistics without underpinning them by the careful studies of sound correspondences and subgroupings needed to distinguish between cognates, accidental resemblances and borrowings or to determine the relative chronology of linguistic innovations. The results of such dabblings will be largely worthless. Haddon and Hornell's (1936-38) admirable survey, Canoes of Oceania, is marred by a number of fanciful historical speculations which rest in part on naive readings of linguistic similarities. To a much larger extent, however, their fanciful historical inferences rest on a diffusionist interpretation of the comparative material culture uninformed by systematic study of comparative vocabulary or by archaeological evidence.

1.3 THE GENETIC COMPARATIVE METHOD

There is a means of escape from the limitations of comparative typology. It is the special virtue of the comparative or genetic method of historical linguistics that it can, in principle, (a) define genetic continuity in certain parts of the vocabulary of each language in a language family, distinguishing resemblances due to common origin from resemblances due to borrowing, and (b) assign a relative chronology to innovations occurring within the languages of a linguistic family.5

The power of the genetic comparative method is based on three facts of language design, all connected with its sound system. Firstly, each morpheme or minimal form-meaning pairing in a language (such as the English nouns canoe, rudder and sail) consists of one or more sound segments which themselves have no meaning. Secondly, the association of particular meanings with particular minimal linguistic forms (pronunciations) in a language is in almost all cases, wholly or largely arbitrary. Contrast this with items of material culture, where the connection between the function of an artefact and its form is, as a rule, non-arbitrary. Thirdly, in all well-defined speech traditions (languages or dialects) changes in the

5 It should be stressed that the genetic comparative method is not a discovery procedure that automatically yields correct interpretations of linguistic comparisons. There are invariably ambiguities in the evidence that require choice between two or more hypotheses. The method works best when (a) the number of putative cognate sets is large, (b) the witnesses (languages compared) have had little or no contact for a long time, (c) the number of such independent witnesses in the family is large, and (d) the witnesses at each level fall into more than two subgroups.
sound system occur over time and these sound changes are, typically, regular or non-
random. That is to say, the pronunciation of words in a speech community tends to change in
a systematic way, such that sound \(x\) will change to sound \(y\) under definable phonological
conditions not just in one word but in all words that meet those conditions. (Later historical
events may overlay and even obscure particular original sound changes but often the original
changes can be reconstructed.)

Taken together these three facts allow us to identify languages that are genetically related
and to identify cognates (genetically related morphemes) shared by sister languages, as opposed to borrowed words and chance resemblances. Given a reasonable number of
cognate sets (ideally at least several hundred) the method also allows us to reconstruct,
approximately, the sound systems and forms of words at earlier stages in the history of a
language family and to work out a relative chronology of innovations that indicate a family
tree or subgrouping for the family.

However, linguists need not feel unduly smug about the genetic comparative method. It
applies only to a restricted part of each language-culture system, namely the stock of
morphemes that have cognates in genetically related languages. Often it happens that
linguistics is silent in the face of competing hypotheses derived from comparative
technology, say, about techniques of manufacture, because no distinctive terms can be
reconstructed for the technological elements in question. And while the genetic method often
allows us to make strong inferences about the presence of some things in a reconstructed
language-culture system, it does not tell us what was absent. That is to say, our inability to
reconstruct a term for a particular element in protolanguage \(L\) is not conclusive proof that
speakers of \(L\) lacked a term for that element. Within these limitations, the genetic comparative
method remains a powerful tool.

1.4 NOTES ON LEXICAL SOURCES AND AUSTRONESIAN SUBGROUPING

Many previous publications isolate \(AN\) cognate sets referring to canoe parts and seafaring.
However, works compiled by linguists only list such cognate sets as isolated items within a
larger body of semantically unordered material. This paper draws together published
comparisons and extends them. Sources giving relevant cognate sets or sound
 correspondences relevant to determining cognition include Bender et al. (1990), Biggs
Ross (1988), Sneddon (1984) and Tryon (1976b). We have also consulted dictionaries of
many contemporary languages.

Subgrouping hypotheses are central to lexical reconstruction. The level to which a
reconstruction from a cognate set can be attributed depends in the first place on which
subgroups or branches of the family tree the cognates are found in. The high-order
subgroupings of the 1,000 or so \(AN\) languages remain somewhat controversial. Here we
follow, as a reasonable working hypothesis, the groupings proposed by Blust (1977a,
1978a, 1982a, 1983-84a, 1992b). Like Dahl (1976), Blust regards the primary split in \(AN\)
as dividing the Formosan languages from a Malayo-Polynesian (MP) group, which

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\[6\] The 1990 Pollex printout was used in this paper.
comprises all non-Formosan languages. Blust classifies the Malayo-Polynesian branch into two first-order groups: (a) Western Malayo-Polynesian (WMP) and (b) Central and Eastern Malayo-Polynesian (CEMP). WMP comprises upwards of 300 languages distributed over the Philippines, Malaysia and small parts of mainland Southeast Asia, and over western and central Indonesia.

Blust divides CEMP into two primary branches: Central Malayo-Polynesian (CMP) and Eastern Malayo-Polynesian (EMP). CMP is located in eastern Indonesia and comprises the languages of the Flores Islands east of Bima-Sumba and of the Moluccas and comprises around 150 languages. EMP is much larger and more widespread, with around 500 members extending from eastern Indonesia to the eastern Pacific. EMP has two primary subgroups. There is a small group South Halmahera-West New Guinea (SHWNG) group consisting of the 40 or so AN languages spoken in Halmahera and around Cenderawasih Bay on the Bird’s Head of New Guinea. Its sister subgroup is Oceanic (OC). To Oceanic belong all the AN languages of Melanesia other than those which fall into SHWNG, the Polynesian languages and all the languages of Micronesia excepting Chamorro, Belauan and possibly Yapese.

Blust’s subgrouping is summarised in Figure 1.

```
Proto Austronesian
   /\     
  /  \     
Formosan Malayo-Polynesian
  /\      /
 /  \    /  \   
Western MP Central & Eastern MP
  /\     /\     
 /  \   /  \   
Central MP Eastern MP
  /\     /\     
 /  \   /  \   
South Halmahera-West New Guinea Oceanic
```

**FIGURE 1: THE HIGHER ORDER SUBGROUPS OF AUSTRONESIAN (after Blust)**

The most strongly supported of the subgroups mentioned above are Eastern Malayo-Polynesian and its two primary branches: South Halmahera-West New Guinea and Oceanic. The others rest on weaker evidence. For an etymon to be attributed to a given stage, call it Proto X, it is crucial that the etymon at least be reflected by cognates in (i) two primary subgroups of X, or (ii) one primary subgroup of X and one external witness – a language in the family that does not belong to X. In addition, (iii) the conditions should be such that borrowing is an unlikely explanation for the distribution. For instance, to be attributed to PMP, an etymon needs to be represented at least in (a) a WMP language and a CEMP language or (b) a MP language and a non-MP (i.e. Formosan) language. If (a), the case for
the reconstruction is strongest if the CEMP witness is Oceanic, because of its geographic remoteness from WMP. If (b), the case is strongest if the MP witness is geographically distant from Formosa.

Within each of the higher order groups named in Figure 1, a number of lower order branches have been posited. Although scholars are by no means agreed on all the details, the following groups seem fairly well supported (Bender 1971, Blust 1978b, Geraghty 1983, 1986, Haudricourt 1971, Pawley 1972, Ross 1988).

![Diagram of Oceanic language subgroups]

**Figure 2: A Partial Subgrouping of Oceanic Languages**

In this study the Oceanic subgroup, and in particular, Central Pacific languages have been given better coverage than other AN subgroups partly because we have had access to fuller data in these cases and partly because we are more familiar with the languages.

1.5 **Organisation of Reconstructions and Cognate Sets**

Some 50 cognate sets will be discussed. These are ordered by semantic domains, beginning with types of vessels and hull construction and going on to outrigger structure, superstructure, sail and rigging, accessories, launching, beaching and anchoring and ending with terms for seafaring and seafarers. Each set of cognates or putative cognates is grouped together under a number and a reconstructed etymon. Reconstructed terms are marked by an asterisk.

Each reconstructed word or etymon is attributed to a certain level of the AN family tree, the highest level justified by the distribution of the cognate set across subgroups. Below it are listed the cognates from contemporary languages. These are ordered according to subgroup, usually proceeding roughly in a west-to-east direction, for example, WMP cognates precede CMP cognates which in turn precede EMP cognates. As well as giving the highest-level reconstruction we often give intermediate-level reconstructions for named interstages, especially when the the interstage reconstruction differs significantly in form or meaning from the highest-order reconstruction. When listing cognates we occasionally
ACKNOWLEDGE SOURCES WHEN THE EVIDENCE COMES FROM HADDON (1937), HORNELL (1936) OR HADDON AND HORNELL (1938) OR A SOURCE OTHER THAN A PUBLISHED DICTIONARY.

THE FOLLOWING ABBREVIATIONS ARE USED FOR FREQUENTLY CITED SUBGROUPS (‘P’ BEFORE ANY OF THESE ABBREVIATIONS STANDS FOR ‘PROTO’):

ADM    Admiralty Islands
AN     Austronesian
CMP    Central Malayo-Polynesian
CEMP   Central & Eastern Malayo-Polynesian
CNV    Central & Northern Vanuatu
CP     Central Pacific
EMP    Eastern Malayo-Polynesian
MP     Malayo-Polynesian
MC     Nuclear Micronesian (all Micronesia except Chamorro, Belauan, Yapese)
OC     Oceanic
PN     Polynesian
PT     Papuan Tip (Central, Milne Bay, Northern Provinces of Papua)
SS     South-East Solomonic (Nggela, Guadalcanal, San Cristobal, Malaita)
SHWNG  South Halmahera-West New Guinea
WO     Western Oceanic (New Guinea mainland, New Britain, New Ireland, Western Solomon Islands)


2. TYPES OF VESSEL AND HULL CONSTRUCTION

2.1 TYPES OF VESSEL

HADDON AND HORNELL (1938:70-72) REFERRED TO TEN OR SO PUTATIVE COGNATE SETS HAVING THE GENERAL SENSE OF ‘CANOE’ OR ‘BOAT’ THAT GO BACK TO AN EARLY STAGE OR STAGES OF AN. WHILE EARLY AN SPEAKERS PROBABLY HAD SEVERAL DIFFERENT NAMED TYPES OF CRAFT MOST OF HADDON AND HORNELL’S ETYMOLOGIES ARE FALSE. ONLY ONE OF THEIR PUTATIVE COGNATE SETS CAN BE ATTRIBUTED TO AN EARLY AN INTERSTAGE – THAT POINTING TO PCEMP *wajka, POC *waga.

POC *waga (phonetically [wáŋga] with [ŋ] being a single phoneme) is widely reflected within Oceanic as a generic term for a canoe or boat with a hull, as opposed to a raft. In many Oceanic languages, however, the reflex of *waga refers chiefly to large sailing canoes and other large vessels, in contrast to dugout canoes and small outrigger canoes. This range of meanings, taken together with cognate set (5) (under PMP *katiR) suggests that *waga may have had two senses in POC.
(1) PCEMP *waŋka ‘outrigger canoe’
  CMP: Buru (Ambon) waga, Komodo waŋka ‘boat, canoe’; Manggarai waŋka ‘canoe’
  SHWNG: Mor wa?a, Dusner wak ‘canoe’; Numfor wa(i) ‘outrigger canoe’; Waropen gha ‘boat, canoe’
  POC *waga 1. ‘large sailing canoe’, 2. ‘canoe (generic)’
  ADM: Wuvulu wa, Seimat wa ‘canoe’
  WO: Gedaged wag ‘large canoe that goes out on the high seas, has one or two masts and a large platform, ship or boat’; Gitua waga ‘canoe’; Jabem wag ‘canoe, boat, ship’; Dobuan waga ‘sailing canoe’; Molima waga ‘canoe in general’; Kiriwina waga ‘generic term for all kinds of sailing craft’; Wedau waga ‘large canoe’
  CNV: Mota aka ‘canoe’, aka paspasau ‘canoe with plank sides’
  PCP *waga ‘sailing canoe’: Fijian waqa ‘generic for boats (traditionally canoes) of all kinds’; Hawaiian wa’a ‘canoe’; Tikopia vaka ‘canoe (generic)’, vaka tapu ‘consecrated voyaging canoe’; Tongan vaka ‘boat (generic)’; Tokelauan vaka ‘canoe, craft, boat’; Samoan va’a ‘boat (generic)’, va’a folau ‘sailing boat (for long voyages)’
  PMC *waxa ‘canoe’: Kiribati waa, Marshallese waha, wah, Puluwat waa 1. ‘canoe, vehicle of any kind’, 2. ‘container, people in a canoe’, waa-herak ‘large sailing canoe able to face the high seas’; Trukese waa ‘canoe, boat, vehicle’; Woleaiuan wa ‘generic for all canoes’

Note also Bolaang-Mongandow (N. Sulawesi) waŋgh ‘canoe’. This is the only reported cognate in a WMP language but the form is possibly borrowed from a CEMP source.

The primary sense of POC *waga was perhaps ‘large sailing canoe’ in contrast to paddling canoes (dugouts and small outrigger canoes). This sense is widely reflected across subgroups of Oceanic. As the name of the largest and most prestigious type, *waga would have been a natural choice as a generic term for all types of canoe and in a number of languages the generic sense has become primary. An example is Kiriwina or Kilivila, the language of the Trobriand Islands (reported by Haddon (1937:267-269), based on Malinowski (1922) and correspondence with Malinowski). In Kiriwina there are four named types of canoes. The kewo’u is a simple dugout with outrigger, used in the lagoon. The kalipoulo, a fishing canoe, is a larger dugout with several designs. These have in common a hull built up with a washstrake on each side, and transverse carved and painted breakwaters, and the hull usually has pointed ends, carved and painted. There is often a platform over the booms. The sail is a lateen. The masawa is a large trading canoe, similarly constructed to the kalipoulo but with two clinker-built washstrakes on each side and 20 or more booms covered by a continuous platform. It carries a large, elongated steering oar worked by two men. The nagega is larger and more seaworthy than the masawa, with higher sides and more carrying capacity and a central standing mast, as opposed to a leaning mast stepped within the hull and shored by a prop. The generic term for all these craft is waga. In another part of Papua, around Samarai, Abel (1902:63) reports that vaga is the generic for all kinds of sailing canoes, but evidently excludes canoes without outriggers or sails.

Cognates belonging to set (1) are sometimes placed together with forms such as those listed in sets (2) and (3) below.
(2) WMP: Malay, Javanese *waŋkaŋ*, Ngadju Dayak *vaŋkaŋ* 'Chinese junk'

(3) PAN *ba(q)ka(q)/ * outrigger canoe, dugout canoe’

Formosan: Kuvalan *baŋka/ 'canoe’ (term obsolete; cited by Ferrell 1969, pp. 42, 247), the only reported cognate in a Formosan witness

WMP: (i) Philippines: Aklanon *baŋca*, Balangaw *baŋka/ 'canoe’; Cebuano *baŋqa/ ‘a one piece dug-out between 5 and 15 metres, optionally with one or two masts and outrigger’; Ilongot *bangka*, Tagalog *baŋka/ 'canoe’; Tausug *baŋkaq* ‘dugout canoe (without outrigger’; (ii) Sulawesi: Laiyolo (S. Sulawesi) *biŋka* ‘canoe, boat’; Tolaki *baŋga* ‘canoe’

PCEMP *ba(q)ka* ‘canoe’

CMP: Larike (Ambon) *haka*, South Nuaulu (Seram) *haka*, Kola (Aru) *boka* ‘canoe’

OC: Nggela *vaka* ‘foreign vessel, European ship’; Sa’ a *haka*, Roviana *vaka* ‘ship’

Although the forms in sets (2) and (3) show a striking resemblance to POC *waga*, they are not demonstrably cognate. In the case of set (2), Malay, Javanese and Ngadju Dayak initial w is irregular, suggesting these are borrowed words, though the source of the borrowing is unclear (Adelaar, pers.comm.). In the case of set (3) forms, the uncharacteristic occurrence of the cluster *ng* in the Philippine and Formosan forms suggests borrowing from a Malayo-Javanic or Sulawesi source (Reid, pers.comm.). Tagalog and Cebuano *b* are not the regular reflexes of PMP *w*. At present most of the few coastal AN-speaking communities left on Taiwan proper use large bamboo sailing rafts for fishing. However, there is evidence that in the nineteenth century other kinds of craft including double outriggers were in use. Scott (1982:337) cites an eighteenth century Chinese observer, Huang Shi-ching, describing a built-up dugout canoe called a *manka* [or *banka*] as follows:

A *manka* is a single tree trunk hollowed out, with wooden planks fastened on both sides with rattans; since they have no putty for caulking and water easily enters, the barbarians keep bailing with a ladle.

It is likely (Mark Donohue, pers.comm.) that the Chinese characters in question are from the Hokkien dialect and should be read as *banka* not *manka*, as reported by Scott.

The form *ba(q)ka* is however reflected both in CMP and Oceanic and must be attributed to their common ancestor, which Blust labels PCEMP.

Blust (1984-85:53) writes that only a single term for boat can be reconstructed for PAN itself, namely *qabaŋ*, which he says "may have referred to dugout craft for use in coastal waters’. Evidence for this reconstruction includes the following:

(4) PAN *qabaŋ* ‘k.o. canoe’

Formosan. The following are glossed ‘boat/canoe’ by Ferrell (1969:247): Tsou *apāŋa*, Saaroa *ʔapaŋa*, Favorlang *abak*, Oponohu *havaŋq*, Siraya *avang*

WMP: Yami *avąŋ* ‘boat’. The following are all glossed ‘canoe’ by Reid (1971:58):

Bilaan *awľp*, Dumagat *qa\'beŋ*, Gaddang *qabaŋ*, Manobo (Ilianen) *qawąŋ*, Tagabili *owoŋ* ‘canoe’

CMP: Buru *afa-n* ‘shelled (rice) husk (shaped like a dugout)’

The weakness of this reconstruction is that it rests primarily on evidence from languages in geographically contiguous regions – Formosan and Philippines witnesses. On the other hand, the term is fairly widespread in both regions.
The next term is reconstructable as far back as PMP. But note the disagreement between WMP and Oceanic witnesses as to its meaning.

(5) PMP *katiR 'small outrigger canoe or canoe hull'
   PWMP *katiR 'outrigger float': Malay katir, Madurese kater, Sundanese katir, Maranao katig, Tausug katig, Cebuano katig n. 'float of the outrigger', v. 'provide a boat with outrigger'; Sasak katir 'carry between two persons'
   POC *kati(R) 'small outrigger canoe or canoe hull'
   WO: Manam kati, Kairiru qat 'outrigger canoe'; Nusa (New Ireland) kati 'large outrigger canoe 50 or more feet in length' (Haddon 1937:141); Tuam (Siassi) kat 'canoe platform'
   PPT: Motu asi 1. 'hull of large multi-hulled canoe (finished more roughly than single-hulled canoe) (lagatoi)', 2. 'large canoe', asiasi 'temporary small double canoe'; Sinagoro gasi 'outrigger canoe'; Roro ahi 'canoe, hull'

Although the WMP cognates denote 'outrigger float', there is a much stronger candidate for that meaning in PMP, namely *(cs)a(R)man (see cognate set (23) below). Therefore we conclude that *katiR is unlikely to have meant 'outrigger float' in PMP and that the WMP cognates probably show semantic change. In Oceanic, reflexes of *katiR are confined to Western Oceanic but are widely dispersed within that large group. The Western Oceanic comparisons strongly point to an earlier meaning such as 'canoe hull' or 'small outrigger canoe'.

2.2 DOUBLE CANOES

It has been suggested (Green, pers.comm.) that the ocean-going double-hulled canoe was an innovation of Oceanic speakers. He argues that it was large double canoes, stable and able to carry big loads while being sailed with traditional rig, that was the key to the transport of people, crops and domestic animals to the far-flung islands of Remote Oceania (the Pacific islands east and north of the New Guinea area, the Bismarck Archipelago and the main Solomon Islands chain).7 The design of double canoes varied in some details from place to place but the basic structure consisted of two dugout hulls, placed parallel and usually one to two metres apart, joined by booms, with a platform built amidships. In the most efficient craft, represented by the Fijian druа, one hull was slightly smaller than the other. At the time of first European contact such craft were almost wholly confined to Remote Oceania, being present in New Caledonia and Fiji, in many parts of Polynesia and in a restricted region of the Central Caroline Islands. In western Melanesia double canoes were made by the Mailu, of south-east coast Papua. The Mailu speak a non-AN language but many of their canoe terms (and other parts of their vocabulary) are from AN; it seems likely that the population of the Mailu area was once largely AN-speaking. The Motu lagatoi, a multi-hulled craft, can be derived from the double canoe.

No term for double canoe can safely be reconstructed for any very early AN interstage. However, a number of Oceanic languages reflect the following form:

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7 See Pawley and Green (1973), Green (1991b) for the terms 'Near Oceania' and 'Remote Oceania'.
(6) ? Proto Eastern Oceanic *paqurua ‘double canoe’
   SS: Lau (Malaita) foorua ‘outrigger canoe’
   CP: Rotuman foulua ‘ship’ (probably a Polynesian borrowing); Fijian drua, waqa drua ‘ocean-going double canoe’; PPN *fa?urua ‘double canoe’; Maori hourua ‘double canoe’; Tuvaluan foulua ‘double canoe’ (obsolete) (Hornell 1936:302); Niuean faulua, foulua ‘ship’; Rennellese ha’ugua ‘the double canoe in which the ancestor Kaitu’u sailed when he discovered Rennell and Bellona’
   MC: Kiribati baurua ‘large single-outrigger voyaging canoe’ (b for *p unexpected, possibly borrowed from a PN source)

Compare also Samoan fau-tasi ‘(large whaleboat’, possibly a nineteenth century coinage); Hawaiian wa’a kau-lua ‘double canoe’ vs wa’a kau-kasi ‘single-hulled canoe’; Manihiki waka tau-rua ‘double canoe’.

*paqurua is analysable into *paqu ‘bind, lash; construct by tying together’ and *rua ‘two’. Both elements are independently reconstructable for POC (note Samoan fau ‘make, construct (wooden objects, canoes, etc.)’; Tongan fo’u ‘build, construct, of boats or canoes only’; Rennellese ha’u ‘tie, lash’; Lau foo ‘bind’; Arosi ho’o ‘bind, fasten, tie’; Sa’a ho’o ‘bind’; Kiribati bou ‘construct (canoe, house)’).

While it is possible that Lau foorua is borrowed from a Polynesian language, the details of form do not support this notion. Lau has the independent bases foo ‘bind’ and rua ‘two’. Haddon (1937:77) reports Kinilaualau (Carteret I.) haulua, holua ‘outrigger canoe’, but this term is probably borrowed from a Polynesian language believed to have been formerly spoken on the island or from nearby Takau.

Friederici (1928:31) suggests that the double canoe of Oceania (or at least the type with smaller and finer-pointed port hull) originated from a canoe with a single outrigger, on the grounds that (a) in the double canoes of Polynesia and Fiji one of the two hulls is usually smaller, and that the smaller hull is called by the term for the outrigger float (e.g. hama in Tongan), and (b) the connecting poles between the hulls are also called by the word for the outrigger booms (kiato in Tongan). On the other hand, Haddon and Hornell (1938:43) argue that the most likely origin of the double canoe is from two dugouts lashed together or a short distance apart. They also note the possibility that the single outrigger canoe may ultimately be derived from the double canoe by reducing the port hull to form a float. As the smaller hull and the float, and the connecting poles serve the same purpose in both types of vessels the extension of terms seen in Tongan hama and kiato is natural. On logical grounds alone it is hard to choose between these historical interpretations. And in this case the linguistic evidence is relatively unhelpful.

Numerous other reconstructions, attributable to interstages lower than PMP and POC, can be made for types of craft. A few examples follow:

(7) PWMP *balutu ‘kind of outrigger canoe’: Ata Manobo balutu, Binukid barutu, Mamanwa baloto, Manobo ba’utu ‘canoe’; Samar Leyte balutu ‘kind of outrigger canoe’; Tagbanwa (Kalamian) barutuq ‘dugout with outrigger’

The following doublets (distinct words coexisting in a language whose similar form and meaning suggest they ultimately trace back to the same source) can be reconstructed:
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(8) (a) PWMP *padaw ‘kind of sailboat’ (Blust 1983-84a:90): Maranao padao ‘sailboat’; Malay layar padau ‘storm sail’; Cebuano paraw ‘schooner’, galleon
(b) PWMP *paraSu ‘boat’ (Dempwolff 1938): Toba Batak parau, Javanese, Malay perau, Ngadju Dayak parau ‘ship’

These forms have sometimes been compared with Oceanic forms represented by Tongan folau ‘voyage, travel by sea’, Fijian volau ‘boat shed’ (cf. set (51)).

A PPN reconstruction for a small canoe used close to shore is well supported:

(9) PPN *paopao ‘small outrigger or dugout canoe for inshore use’: Samoan paopao ‘small outrigger canoe, with two booms’; Tongan poopao ‘roughly made dugout canoe with two boom outrigger’; Tikopian paopao 1. ‘craft made from log simply hollowed out, not built up’, 2. ‘canoe, sea-going but not sacralised, in contrast to vaka tapu’; Nukuoro paopao ‘double-ended single outrigger with two booms’

A possible cognate occurs in a single Western Oceanic language, Mekeo, of the Central Province of Papua. East Mekeo has papao (dialect fa’afo) ‘small canoe for children, also used as a trough for feeding pigs’. Reduction of the first vowel cluster of a reduplicated word is characteristic of Mekeo (Jones, pers.comm.). This comparison points to POC *paopao ‘small outrigger canoe’, though it needs strengthening by further cognates beyond Polynesian.

Blust (1986:33) reconstructs the term *dakit, noting a number of reflexes within the WMP region and a regular reflex in one Oceanic language, Motu. To these may be added many other Philippine and Northern Sulawesi reflexes (given in Reid 1971) and three possible reflexes in CMP and Western Oceanic.

(10) PMP *dakit n. ‘raft’, v. ‘join along the length’

PWMP *dakit n. ‘raft’: Aklanon gaakit, Gaddang gakit, Isneg gaakit, Ivatan daakit, Kankanay lakit, Malay rakti, Sangir hakiq, Sundanese rakti, Wolio rakii v. ‘join along the length’; Balangaw, dakit ‘put very close’; Sika dakit-wii ‘cleave, stick together (earth, flour resin)’; Maloh da’tit ‘raft’, dakit ‘join along the length’

CMP: Taliabo ka/hapki? ‘raft’ (Grimes, pers.comm.)

OC: Motu rai ‘prepare a canoe for the sea; tie the outrigger on; tie two canoes to make an irai (double-hulled canoe)’. Chowning (1985:59) gives Lakalai laGe, Kove laGe ‘raft’ as possible cognates, although the final vowels are problematic.

2.3 HULL CONSTRUCTION

In pre-European times three basic hull designs were found in AN-speaking communities: (a) a dugout built from a single log; (b) a five-part canoe, composed of dug-out hull, with the sides raised by sewing one side piece or strake to each side, with forked, crutch-shaped pieces at each end; and (c) a built-up canoe, in which a number of planks or strakes are added to a keel. The keel may consist of a thick plank or a dugout underbody (or sometimes two or even three dugouts joined).

Ethnologists have argued on logical grounds that types (b) and (c) developed from the dugout prototype. In his account of Philippine boat-building in the sixteenth and seventeenth centuries, Scott (1982:337-338) sketches a theory of the evolution of the hull of Philippine boats:
In the ship-building technique [developed in China and Europe in the Middle Ages]...a rigid framework of keel and ribs is first constructed...and the wooden planking of the hull then nailed to it with metal spikes or wooden trenails. The older technique was to build the hull first, plank by plank carved to fit, and to fasten the ribs in afterwards. This technique is probably a natural development of the one-log dugout canoe by adding one board to each side to obtain higher freeboard.

By increasing the number of such additional planks, a fully developed boat or ship is produced. But as the sides of the canoe, or banca, are thinned, some transverse strengthening is required, and this can be provided by running strut-like thwarts across the vessel, securing them to the sides without nails by means of tambukos [lugs] and lashing. For this purpose a flexible rib can be pressed down across all of them and lashed securely to the matching tambukos carved on each plank. Finally a combination of such thwarts and ribs lashed together...produces a sturdy vessel whose hull and other structural parts are held firm under prestressed tension.

The question arises as to whether any or all of these features of hull design are attested in the vocabulary of PMP and other interstages.

2.4 PLANKING

Comparisons (11)-(13) below point to the use by speakers of PMP and its immediate descendants of boats built up by planking and strengthened by thwarts:

(11) PMP *papan ‘plank (of boat, etc.), strake’
    WMP: Malay papan, Madurese papan (Horridge 1981), Baju papan (Horridge),
           Buginese papan (Horridge) ‘strake, plank of boat, etc.’
    CMP: Buru papa-n ‘plank, board’
    POC *baban, *bapan 1. ‘plank’, 2. ‘canoe plank or strake’
    WO: Molima baba 1. ‘lower plank on canoe’, 2. ‘put plank on canoe’; Wedau
           papan’a ‘built-up canoe’
    SS: Lau baba ‘long side board of canoe’; Sa’a hapa 1. ‘seat of canoe’ (Ivens 1929),
         2. ‘plank’ 3. ‘thwart of a canoe’ (Ivens 1918); Bugotu pava ‘plank’
    PCP *baba 1. ‘plank’, 2. ‘strake on canoe’, *bava ‘plank of canoe’: Fijian bava
           ‘washstrake or upper planks of canoe’, baba ‘side planks of canoe’; PPN *papa
           ‘plank, board’
    PMC *papa ‘plank (of boat, etc.)’: Kosraean pahp ‘sides of canoe’; Puluwat paap
           ‘board, canoe planks’; Trukese pape-n waa ‘canoe strake’ (pape- ‘plank’, -n
           ‘construct suffix’, waa ‘canoe’)

PMP *papan evidently referred to any plank or board. It might be argued that this term could have been independently applied to canoe strakes or planks by different daughter languages after the breakup of PMP. However, the fact that in diverse MP languages reflexes of *papan are consistently used of canoe planks even in cases when another general word for plank or board has developed is a fairly strong indication that this application goes back to PMP times.
(12) POC *\(q\)oRa ‘strake, probably topstrake (washstrake)’
WOWO: Mono-Alu ora ‘median strake at each end, above keel strakes on a canoe with
dugout underbody’ (Haddon 1937:111)

PPN *\(q\)oa ‘topstrake, washstrake’; Niuean oa ‘washstrake, grooved and drilled for
lashing to the hull’; Samoan oa ‘gunwale and gunwale flange’; Tokelauan oa ‘gunwale’; Pukapukan oa ‘washstrake’; Rarotongan oa ‘the sideplank or planks
of a canoe, lashed to the main body; the gunwhale or sea-board of a canoe’;
Maori oa ‘side boards of a canoe’; Tikopian ea ‘top strake, gunwale’

Possible cognates of *(q)ora occur in Cristobal-Malaitan languages of the South-East
Solomon Islands: Arosi ora, Lau ola ‘plank-built canoe (built up from a plank centre keel,
with bow and stern keels), with no outrigger’. However, other evidence from South-East
Solomon Islands languages confuses the issue. Nggela and Tolo (Guadalcanal) tiola ‘generic
term for plank-built canoes’, and ‘Are’are iora, Sa’a iola ‘plank-built canoe’ might be
explained as deriving from a bimorphemic form *ti-(q)ora (Cristobal-Malaitan languages
regularly lose POC *

We can reconstruct PMP *\(k\)iRam ‘adze/axe’ and *\(t\)aRaqi ‘to adze, carve’, with reflexes in
Oceanic as well as in WMP witnesses, but there are no secure PMP or POC reconstructions
for other equipment likely to have been used in boat-building. The current consensus among
archaeologists is that the introduction of metal in eastern Asia postdated the breakup of PAN
and PMP. Although Blust (1976b) has pointed to comparisons between Formosan and WMP
forms suggesting that PAN speakers may have had a knowledge of metal tools, it is likely
that this knowledge spread after the breakup of PAN and PMP.

8 The fruit of the putty nut (Parinarium laurinum) is widely used to caulk or stop a vessel. In Proto Huon
Gulf an identical term is reconstructable both for the nut and the glue that is made from it:
Proto Huon Gulf *jimiri ‘putty nut, caulking substance’ (Ross 1988:79); Tami jim ‘caulking substance’;
Tuam zimir ‘caulk’; Numbami dimil-a ‘caulk’
The following set is of uncertain relation to *jimiri:
POC *jema ‘caulk’ (Milke 1968); WOC: Motu dema-ia ‘caulk’; CP: Fijian sema ‘splice, join, patch’,
sema-ta ‘to splice, join, patch s.th.’
2.5 THWART, CROSS-SEAT

Reconstruction (13) was made by Blust (1972c:67), based on WMP and CP cognates:

(13) PMP *seŋkar ‘cross-seat in boat, thwart’
WMP: Iban seŋka, Malay seŋkar, Tagalog saŋkal ‘cross-seat, thwart’ (cf. also
Tagalog sikap ‘cross-timber’, Malay seŋkap ‘crossbar of any sort’)
POC *soka(r) 1. ‘thwart’, 2. ‘collar-beam in house, etc.’
PCP *soka: Fijian soka ‘thwart’, i-coka ‘collar-beam in house’; Samoan so’a ‘collar-
beam of house’; Tongan hoka ‘upright timber supporting ridgepole’

2.6 UNDERBODY, KEEL

There is no well-supported PMP reconstruction for ‘dugout underbody of canoe (to which
planking is added)’ or for ‘keel of built-up canoe’ although both *qabaŋ and *ba(g)ka(q)
(discussed above) are candidates for the former. Such terms are, however, clearly
reconstructable for PCP and perhaps for PWMP:

(14) PCP *takele ‘keel or dugout underbody to which planking is added’: Fijian i-takele,
Wayan takele ‘keel or dugout underbody’
PPN *takele ‘keel or dugout underbody’: Tongan takele, Samoan ta’ele, Maori takere
‘keel or dugout underbody’; Tikopian takere ‘bottom of container, bilge of a
canoe hull’; Rarotongan takere ‘dugout underbody when washstrakes are
present’; Hawaiian ka’ele ‘canoe hull; inside bottom of a container’

(15) PWMP *lu(nŋ)as ‘keel or dugout underbody’: Malay lunas, Javanese lunas, Iban lunas
‘dugout shell of a Dayak boat’; Tagalog lunas ‘floor or bottom of a boat’; Tausug lunas
‘keel’

The restricted geographic distribution of the forms in set (15) makes it hard to rule out
diffusion.

2.7 BILGE, INTERIOR OF HULL

A PPN term for ‘bilge, interior of hull’ is well supported but cognates have not been
noted elsewhere. In some Polynesian languages the same term refers to the interior of any
container, such as a cup or basket

(16) PPN *liu ‘bilge, interior of hull’: Tongan liu ‘bilge’; Niuean liu ‘inside of a cup, canoe’;
Samoan liu ‘bilge water’; Maori riu ‘bilge, valley, basin’; Rennellese giu ‘bilge, interior of basket, bowl, etc.’; Tikopian riu ‘the inside of a container; bilge of a canoe’

2.8 BOW AND STERN

Two well-attested POC locative nouns having the general sense of ‘rear, back part’, and
‘front, front part’, respectively, are reconstructable also with the specialised senses ‘stern’
and ‘bow’. The first of these terms goes back at least to PMP.

(17) POC *muri- ‘rear, stern’
WO: Gedaged muzi-n ‘rear, stern’; Nakanai mori, Vitu muri ‘stern’
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Mussau: Emirau muri ‘stern’
SS: Ghari muri-na ‘stern of a boat, hindquarters’; Lau buri ‘stern, rear’; Sa’a puri ‘stern’
PPN *tau-muli ‘rear, stern’ (see comparison (21))

(18) POC *muqa ‘front, bow of boat’
WO: Gedaged muga-g ‘front part, bow of boat’ (Gedaged g for POC *q irregular); Roviana ke/mua ‘bow’
Mussau: Emirau mua ‘bow’
PCP *muqa ‘front part, bow of boat’: Fijian mua ‘tip, point, front’, mua e liu ‘prow of boat’; Tongan tau-mua v. ‘steer for s.t h.,’ n. 1. ‘prow’, 2. aim, goal’; Samoan tau-mua ‘bows of boat’

(19) PWMP *(zZ)ulu ‘prow’ (Blust 1970:145): Iban julog ‘bowsprit’; Kelabit dulog ‘prow’; Tagalog duog ‘bow, prow’; Maranao lolog ‘prow’

The problem with cognate set (19) is that all the witnesses are geographically close – the Philippines and Borneo – and it is hard to rule out early borrowing among them.

2.9 CARVED PROJECTING END-PIECES

In many regions of Oceania larger canoes are constructed with a projecting headboard, part of it resting on the underbody abutting the washstrake, the rest sometimes extending several feet beyond. The end of such headboards usually consists of an elaborately carved figurehead, often a human or animal head or figure. There is a corresponding carved endboard at the stern, often standing more or less vertical. Such carved end-pieces are common, for example, in Eastern Polynesia, the Solomon Islands, the Massim, the north coast of New Guinea and the Bismarck Archipelago. A POC reconstruction can be made for the name of the headboard:

(20) POC *iju ‘projecting headboard of prow, often with ornately carved figurehead’
St Matthias: Emirau uru/gila ‘beaklike projection on bow, in shape of a bird’ (Haddon 1937:145)
SS: Sa’a ‘isu ‘pieces erected on bow and stern’; Lau isu ‘prow’
PPN: Maori ihu waka ‘carved figurehead on prow (also called tau ihu vs tau rapa ‘carved ornament on stern’); Tikopian isu mana ‘pointed end of canoe’; Hawaiian ihu ‘prow’, la’au ihu ‘end-piece at head’ (vs la’au hope ‘end-piece at stern’); Tahitian ihu, also ihu va’a ‘projecting headboard on prow’; Manihiki ihu ‘projecting headboard’; Tongareva isu ‘projecting headboard’

The central meaning of POC *iju was ‘nose’ and that of *iju ‘beak, snout, mouth’. Reflexes of both commonly have the extended sense ‘projecting point’. The conjunction of South-East Solomon Islands and Polynesian evidence suggests *isu as the more likely POC form carrying the sense ‘projecting headboard’. No widespread cognate set for the stern-piece has been noted.
2.10 Bow and Stern Covers, End-Decking

While outrigger canoes with simple dugout hull are suitable for inshore sailing, seaworthy canoes require at least 'end-decking', minimally a V-shaped piece covering the bow and stern of the dugout hull. The next comparison points to a PCP term for this piece; PCP *tau may come from POC *taRu 'to cover up':

(21) PCP *tau 'end-decking, end-piece covering bow and stern of canoe hull': Fijian tau 'triangular decking covering bow and stern'; Rotuman fau v. 'cover', n. 'cover'

PFN *tau: 'end-piece covering bow and stern': Nukuria tau 'bow-board, stern board'; Samoan tau 'deck', tau-mua 'bow, foredeck', tau-muli 'stem, afterdeck'; Tongan tau-mu'a 'bow, foredeck', tau-muli 'stem, afterdeck'; Tikopian tau-muli 'stem'; Tokelauan tau 'point at which the keel meets the curve of the bow or stern', tau-mua 'bow, forepart of boat', tau-muli 'stem'; Maori tau-rapa 'carved end-piece affixed to stern' tau-ihu 'carved figurehead affixed to prow'

R. Jackson (pers. comm.) suggests Proto Trukic *tau '? thwart, cross-seat in canoe' based on Carolinean, Trukese soo, Puluwatese ho 'thwart'.

The above Polynesian comparisons also indicate PPN *tau-mua 'foredeck' and *tau-muli 'afterdeck'.

3. Superstructure

3.1 Platform

On medium-sized and large canoes a platform is sometimes built over the hull and the outrigger (or between the two hulls on double canoes) or two platforms are built, one on the outrigger and one on the starboard side. No PMP term for such a platform is reconstructable on present evidence but there is a strong candidate for a POC term, namely:

(22) POC *patar 'platform of any kind, including that erected over hull and outrigger framework'

ADM: Ninigo pacha 'canoe platform' (Haddon 1937:137)

PWO *patar or *patapatar 'platform, canoe platform': Kuanua vatar 'bamboo or board platform on canoe'; Kiriwina pitapatile 'canoe platform'; Molima vatavata 'platform of any kind', vatavatala 'canoe platform'; Daui (Bonabona) patapatari 'canoe platform of poles stretching across all the booms' (Haddon 1937: 243); Motu pata 'shelf, table'

SS: Arosi haa 'platform'; 'Are'are haa 'generic name for stage, shelf, small platform above fireplace'; Tolo (Guadalcanal) pata 'raft'

CNV: Raga bata 'canoe platform' (Haddon 1937:35)

FCP *vata 'platform, shelf': Fijian vata 'platform, shelf'; Rennellese hata 'platform, canoe platform'; Samoan fata 'platform (over canoe, etc.)'

3.2 Cabin, Deck Hut

A deck hut is often added to large outrigger canoes but no widespread cognate set distinctively denoting such a structure has so far been noted. In a number of languages reflexes of PMP *balay, POC *pale 'hut, shed, open-sided house' are used for a deck hut,
for example, Fijian vale waqa (lit. ‘canoe house’) and valevale ‘hut’ (Hornell 1936:323), and this may also have been the case in POC.

4. OUTRIGGER STRUCTURE

4.1 OUTRIGGER FLOAT, OUTRIGGER SIDE OF CANOE

The meaning ‘outrigger float’ can be attributed to PMP *(cs)a(R)man. This term is well attested in Oceanic and CEMP, but rare in WMP. In many WMP languages it has been replaced in this meaning by a reflex of *katiR (see cognate set (5) above). In Oceanic languages the reflex of POC *saman also has the sense of ‘outrigger side of the canoe’, in contrast to *katae ‘free side of canoe’ (see cognate set (26)).

(23) PMP, PWMP *(cs)a(R)man ‘outrigger float’

WMP: Sangir sahemang, Tonsea (N. Sulawesi) sareman ‘? paddle’; Chamorro sakman ‘large canoe from Polynesia or Papua. No outrigger, capable of carrying over 100 people’

CEMP: Ujir (Aru I.) arman ‘outrigger float’; CMP: Ambonese Malay seman, Buru semen, Larike simanu, Kola ama, Dobel yer’man ‘wooden strut which supports float’

POC *saman ‘outrigger float’

ADM: Wuvulu tama-ne, Ninigo cham ‘outrigger float’

Mussau: Emira saman/a ‘outrigger float’

WO: Gedaged sam ‘outrigger float’; Nehan hamam ‘boom (vs niag ‘float’); Manam rama ‘outrigger’ (gloss dubious, probably should be ‘outrigger float’)

CNV: Mota sama 1. ‘outrigger of a canoe’, 2. ‘to tack, lie on the other tack’; Paamese asem ‘outrigger’

PCP *zama 1. ‘outrigger float’, 2. ‘smaller hull of double canoe’: Fijian cama 1. ‘outrigger float’, 2. ‘smaller hull of double canoe’; Tongan hama 1. ‘outrigger, 2. ‘smaller hull of outrigger’; Tikopian ama ‘outrigger including float, always on port side’

PMC *zama ‘outrigger float’: Kiribati rama, Marshallese -tam, Puluwat taam, Trukese taam ‘outrigger float’

Oceanic languages of the Papuan Tip subgroup reflect *sarima rather than *saman (e.g. Motu darima, Daui salima, Dobu salime, Molima salima). The *sarima forms possibly continue PMP *(c,s)aRman with irregular insertion of i. A similar insertion occurs in the PMP verbal prefix *paR-, continued as POC *paRi.-

4.2 OUTRIGGER BOOMS

The outrigger float is connected to the hull by booms, two or three in the case of small canoes but often five or more in larger, ocean-going canoes. A term for ‘outrigger boom’ can be reconstructed for POC but not for PMP:

(24) POC *kiejo ‘outrigger boom’

ADM: Loniu kiec ‘outrigger boom’

9 See Pawley (1973:172).
WO: Woge kiajo, Manam kiazo, Emira iaro, Kiriwina kiaro, Gedaged aia, Jabem kion, Dobuan kiyas, Barima (S.W. Umboi) kiada 'outrigger boom'
SS: Aroma iaro 'sticks connecting float to boom' (Haddon 1937:225)
CNV: North Efate kiazo 'outrigger boom' (probably Polynesian borrowing)
PPN *kiazo 'outrigger boom': Kiribati kiaro, Kosraean kiyacs (Western MC languages reflect *kiau: Marshallese kiyey, Puluwat kiyo)

Fijian i-kaso 'outrigger boom' (zero for *i irregular) has sometimes been included in this class but probably belongs to a separate set, along with such forms as Mota gaso 'rafter', Lau 'ato 'rafter', which derive from a well-established etymon PMP *kasaw, POC *kaso 'rafter'. However, the comparison with Lau ato 'outrigger boom' suggests that POC *kaso probably had the general meaning 'connecting beam or brace', and as well as denoting cross-beams in a house may have been used as a synonym of *kiajo.10

4.3 CONNECTIVE STICKS ATTACHING FLOAT

Three main methods of connecting the outrigger float to the booms can be distinguished: direct attachment, in which all of the booms are curved and lashed directly to the outrigger; indirect attachment, in which all of the booms are lashed to sticks that are implanted in or lashed to the float; and mixed attachment, in which some booms are attached directly and others indirectly. A great diversity of methods of indirect attachment is found.

A POC reconstruction for the connective sticks (stanchions, struts) was made by Milke (1968) and is well attested. A single cognate in the West New Guinea language, Numfor, allows tentative attribution of this etymon (with indeterminate final vowel) to Proto Eastern Malayo-Polynesian.

(25) PEMP *patotV 'connective sticks or stanchions attaching float to booms'
SHWNG: Numfor fakok 'connective sticks attaching float' (k for *t regular)
POC *patoto 'connective sticks attaching float'
WO: Mandok (Siassi) patot, Arifama batoto, Gedaged patot, Tuam patot, Kilenge patutu, Lihir hidudu 'connective sticks attaching float' (cf. Mekeo ikoko 'nail')
CNV: Aoba batoto 'connecting sticks attaching float'
PCP *vatoto 'connective sticks or stanchions attaching float to booms': Fijian i-vatoto; PPN *fatoto (Biggs n.d.)

4.4 STARBOARD OR HULL SIDE OF OUTRIGGER CANOE

A POC term can be reconstructed with the sense 'the starboards or free side of the canoe, opposite the outrigger side (*saman)'. In Central Pacific languages this term was also applied to the larger hull of a double canoe.

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10 The resemblance in form and meaning between *kaso and *so(ŋ)ka in POC and certain daughter languages is noteworthy.
(26) POC *katae, katea 11 ‘free side of canoe, opposite the outrigger’

WO: Gedaged a’tai ‘projecting part of the canoe platform, opposite outrigger’; Barim (S.W. Umboi) kat ‘platform of canoe’; Vitu kata ‘port side of canoe, contrasting with lama ‘starboard’; Manam ete’a ‘port side of canoe’; Tami kataq ‘side opposite outrigger’

CNV: Mota gatae ‘the free side of a canoe, where the outrigger is not’

PCP *katae, *katea 1. ‘side opposite outrigger’, 2. ‘larger hull in double canoe’:

Fijian kataa 1. ‘starboard side of canoe’, 2. ‘larger hull of double canoe’; PPN *katea: Tongan katea ‘larger hull, main part of canoe as distinct from the ham’; Tikopian katea ‘starboard side of canoe, opposite the outrigger or tuama side’; Samoan atea ‘hull side of a canoe, as opposed to the ama’; Hawaiian akea ‘starboard hull of double canoe’

PMC *katae ‘lee side of canoe’: Marshallese kejah, Ponapean kasah, Trukese asa, Woleaian i-setah ‘lee side of canoe’; Gilbertese katea ‘leeward side of canoe’

No non-Oceanic cognates of set (26) are known.

5. SAIL AND RIGGING

The characteristic Oceanic sail types are: (a) a triangular sprit sail with apex downwards and a spar along each of the two sides stemming from the apex, and (b) the (crab) claw sail – a triangular sail with the foreside fixed to a vertical mast and the afterside to a strongly curved sprit, whose lower end is attached to the foot of the mast. In Indonesia a number of other types of sail are found. Both fixed masts and movable masts or props are used in Indonesia and in the Pacific Islands. The pole is stepped in a socket or on a thwart amidships and can be rotated and raked towards either end by means of running stays.

We give here a further quote from Horridge (1986:56-57):

It is my belief, based on distribution, comparative vocabularies and engineering principles, that the fixed mast with a halyard spread into Malayo-Polynesian communities from the Indian Ocean along with the introduction of the pulley. A large sail of matting could not be raised at sea without a pulley unless it was pushed up by a loose pole. There are no signs that even the last Austronesian-speaking migrants to move out into the Pacific knew about the tripod mast, the tilted rectangular sail, the pulley or the quarter rudder lashed to a rudder support. All of these features also spread only a little way up the mainland coast towards China... The tilted rectangular sail seems to have spread from the Indian Ocean, perhaps even from...Egypt, and to have arrived in Indonesia about 2,000 years ago... It has spread eastwards about as far as the quarter rudder and the pulley.

On some of these points the linguistic evidence appears to be silent. However, several terms for parts of the rig are attributable to POC or to later interstages of Oceanic:

11 Paul Geraghty (pers.comm.) argues that the POC form was *katae, and that the form *katea is a PPN innovation which has been borrowed by a few other languages.
5.1 SAIL

A PMP term for 'sail' (the object) is continued in all the major subgroups:

(27) PMP *layaR ‘sail’

PWMP *layaR ‘sail’: Malay layar, Tagalog layag, Maranao laiag, Tausug layag, Cebuano layag n. ‘sail of a boat, v. ‘put up the sail for a boat to sail’

CMP: Buru laa ‘sail’

POC *layaR ‘sail’

WO: Gedaged lai; Barim (S.W. Umboi) lai, Dobuan naia, Motu lara, Jabem lac n. ‘sail (of a boat, a canoe), v. ‘sail’, ‘sail across, sail or steer canoe towards a goal’

CNV: Namakura na-la, North Efate na-lae, Paamese ala ‘sail’

PCP *laya ‘sail’: Fijian laca, PPN *laa ‘sail’

MC: Marshallese wej-lay ‘sail’

Traditional Oceanic sails are made of matting, woven from pandanus leaves or other plant fibres. It is therefore not surprising to find a POC term whose primary sense was probably ‘mat’ also having the meaning ‘sail’ in a few languages. Given that POC *layaR ‘sail’ is well established, it is likely that *qeba independently acquired the sense ‘sail’ in more than one daughter language.

(28) POC *qeba 1. ‘mat’, 2. ‘matting sail’

WO: Suau eba ‘mat, used as sail’ (Haddon 1937:244); Keapara geba ‘mat’

SS: Lau eba, Arosi epa ‘pandanus sleeping mat’

CNV: Mota epa ‘mat, sail’; Raga ebe ‘mat’; Tangoa ep’a ‘mat, bed’

CF: Samoan epa ‘mat, used to wrap dead’; Rotuman epa ‘mat’

MC: Woleaian yepe ‘baby’s mat’

5.2 BOOM AND YARD OF SAIL

The following form is well attested though its reflexes show a range of meanings:

(29) POC *jila ‘boom or yard of (triangular) sail’

ADM: Seimat sil ‘boom of sail’; Ninigo sil ‘booms of triangular sail’ (Haddon 1937:176); Penchal cil ‘sheet of sail’; Lou e/sil ‘horizontal support for sail’

WO: Tuam na/sila ‘yard or boom of sail’

CNV: Mota pane sila ‘projecting boom of a sail’; Paamese a/sil ‘mast; central trunk of tree that grows straight up’

PCP *jila ‘boom of (triangular) sail’: Fijian sila ‘sheet of a sail’; PPN *tila ‘yard of sail’: Samoan tila 1. ‘sprit or spar of sail’, 2. ‘mast’, tila lalo ‘lower sprit’ vs tila tu ‘yard, upper sprit’; Tikopian tira ‘mast or spar of sailing canoe’; Tongan sila n. ‘yard, for a sail to hang from’, v. ‘shorten the sheet of a sail’; Pukapukan tila ‘yard of sail’; Tahitian tira, Mangaian tira ‘mast’; Maori tira tuu ‘yard of sail, upper sprit’

POC or PCP *jila has commonly (e.g. Blust 1976b, Geraghty 1986, Ross 1988) been glossed ‘sheet’, referring to the rope fastened to the lower corner of a sail to hold it and control its angle. The weight of the evidence, however, suggests that the term referred in POC to the booms or poles used to extend and support a triangular sail, denoting either the upper pole (the yard) or the lower pole (the boom). The use of reflexes of *jila to denote a
fixed mast is confined to certain parts of Polynesia and this sense probably represents a post-PPN innovation. Most Oceanic craft with triangular sails do not use a fixed mast. In one kind of rigging (sprit sail) the longer of the two poles extending the sail serves as the mast, with a mast-shore or stays to secure it, or with the apex of the two poles resting on the deck. In another kind of rigging (lateen), the mast is a separate moveable pole which pivots on a thwart in the dugout or on a socket on the deck and is supported by ropes (stays or sheets) tied to the hull or outrigger and sometimes by a mast-shore. The use of reflexes of *jila for 'mast' and for 'sheet' in various Oceanic languages can thus be derived from the original functions of the booms as supporting and controlling the sail.

5.3 MAST OR PROPS SUPPORTING MAST

(30) POC *kayu-tuqur 'vertical supporting timber, prop supporting rig'

SS: Arosi auu 1. 'centre post of house', 2. 'mast'

PPN *kautu?u 'central supporting timber, prop supporting rig': Maori raa kautuu 'mast and sail' (according to Best (1925a:183), the term raa kautuu refers to a (triangular) sail with mast that is stepped upright in a cupped boss on the floor of the dugout); Tongan kautuu 'yard on a mast'; Samoan 'autuu n. 'core, centre, main theme', v. 'centre around, revolve around something'

PMC *ka(u)tuu 'mast' (Jackson 1983:341): Carolinean ayu 'mast'

Compare also Motu au tubua 'mast, centre post of a house' (au 'wood, stick', tubua 'upright'); Ninigo kaulehu 'mast', where a reflex of *kayu is the first element.

POC *kayu-tuqur (evidently a compound of *kayu 'wood, stick, pole' and *tuqur 'stand; fixed') possibly referred to any main supporting timber including the prop or mast of a boat. This compound has reflexes in South-East Solomonic, Polynesian and Nuclear Micronesian and possibly in Motu. It appears to have been already lexicalised in the immediate common ancestor of these groups.

(31) ? PEO *pana 'mast, boom stepped on foot of mast'

CVN: Mota pane/i 'boom with forked end stepped on the foot of the mast', pane sila 'projecting boom of a sail'

PCP *vanaa 'mast': Fijian i-vanaa, Samoan fanaa, Tongan fanaa, Tokelauan fanaa 'mast'

As the Central Pacific languages in comparison (31) are all in the Fiji-West Polynesia region and innovations in canoe design are known to have moved freely within this region, the PCP antiquity of *vanaa may be questioned. On the other hand, the correspondences Fijian v, Tongan, Samoan f are regular, unlike recent Fijian-Polynesian borrowings, where Fijian v has been borrowed as v. There is a possible cognate in Mota.

5.4 MAST STAYS

The following cognate set appears to be confined to Central Pacific:

(32) PCP *tuku 'running stay supporting sail': Fijian tuku, Tongan tuku, Samoan tu'u 'running stay from foredeck'; Tokelauan tuku 'guy rope of traditional sail, fastened to the outrigger'
The forms in (32) may be cognate with PCP *tuku ‘let go, slacken’. Again, the narrow geographic range of this cognate set makes it hard to rule out diffusion.

6. STEERING OAR

A PMP term for steering oar is well supported. Contemporary languages which retain this term now apply it to rudders but there is no reason to believe that rudders were in use in PMP times. A verbal use ‘to steer (a boat from the stern)’ can also be reconstructed. In many languages this verbal use has now generalised to any kind of steering of a vessel or vehicle.

(33) PMP *quli(n,y) n. ‘steering oar’, v. ‘steer’

PWMP: *quli(n,y): Cebuano ulin v. ‘steer a boat from the stern’, n. ‘stem’; Maranao olin v. ‘steer (a vessel, etc.), manage affairs of another’, olin-aq n. ‘steering mechanism’, pang-olin n. ‘rudder’; Bajau uli ‘steer from the stern’; Mandar guli, gulging (Horridge 1981), Sangir uliq v. ‘steer’, n. ‘rudder’; Wolio uli ‘rudder’

CMP: Roti uli v. ‘steer’, n. ‘rudder’

POC *quli v. ‘steer’, n. ‘rudder’

ADM: Lou (Manus) kuli/p ‘steering oar’

WO: Kiriwina kuliga ‘steering oar’; Molima kuliga ‘steering oar, to steer’; Tami gul ‘steering paddle’; Gedaged ulu/m ‘rudder, steering’; Yabem på/goli, ‘rudder’


7. ACCESSORIES

Under this heading fall objects used or carried on board, such as cargo, anchor, paddles, punting pole, bailer and Triton shell for use as a trumpet.

7.1 CARGO

A single base can be reconstructed, used both as a verb ‘be loaded, carry a cargo (of a boat, etc.)’ and as a noun ‘cargo, load’:

(34) PMP *lujan, ujan v. ‘load (a vessel)’, n. ‘load, cargo’

WMP: Tagalog lulan n. ‘load, cargo, capacity of a vessel or vehicle’; Makassarese luraj v. ‘load’

POC *ujan, *lujan v. ‘load (a boat)’, n. ‘cargo, freight’

PADM *usan v. ‘load, as cargo in a boat’: Nauna us, Seimat uxan-i ‘load, as cargo in a boat’

PPT *(q)uzan ‘load a canoe’: Dobu usan/a, Sinagoro Xura/udi, Motu udauda ‘load a canoe’

PSS *luja v. ‘load (a vessel), n. ‘load, cargo’: Gela, Lau, Kwaio luda, Bugotu luja ‘load a vessel’ (j for *d unexplained)

PCP *uja v. ‘load a boat’, n. ‘cargo, freight’: Fijian usa ‘carry a cargo’; PPN *uta v. ‘carry a cargo’, n. ‘cargo, freight’: Tongan uta, Samoan uta v. ‘carry a cargo’, n. ‘cargo, freight’

MC: Puluwat wutan v. ‘loaded’, n. ‘cargo, load’
7.2 PADDLES, PADDLING AND PUNTING

There are two well-established PMP terms to do with paddling, *be(R)(cs)ay and *pa-luja:

(35) PMP *be(R)(cs)ay n. ‘(canoe) paddle’, v. ‘paddle’
   WMP: Aklanon bugsay ‘a paddle’; Cebuano bugsay ‘paddle or row a boat’; Ngadju Dayak besei ‘to paddle’; Buginese wise, Wolio bese ‘a paddle’
   CMP: Taliabu bese ‘a paddle’; Buru sai ‘to paddle’, sahi-n ‘a paddle’
   POC *pose n. ‘(canoe) paddle’, v. ‘paddle’
   WOC: Manam ore, Roviana vose, Motu hode, Suau wose n. ‘paddle’
   SS: Nggela vohe, Lau fote n. ‘paddle’
   CNV: Mota wose n. ‘paddle’
   PCP* voze n. ‘paddle’, v. ‘paddle’: Fijian voce v. ‘paddle’ (cf. i-voce n. ‘paddle’);
   PPN *fohe n. ‘paddle’

(36) PMP *pa-luja v. ‘paddle’, ? n. ‘paddle’
   PWMP *pa-luja: Simalur aluxa ‘a paddle’, aluxa-i ‘to paddle; Mentawai luga ‘a paddle, to paddle’; Sichule luga ‘a paddle’, feluxa ‘to paddle’; Nias alucha ‘a paddle’, may-alucha ‘to paddle’; Toba Batak luga ‘to row’; Isneg piloxa ‘the oars and paddles of a canoe’
   POC *paluca v. ‘paddle’, n. ‘paddle’
   ADM: Likum (S.W. Manus) heluh
   WO: Roviana valusa ‘bonito fishing’
   SS: Arosi haruta ‘to paddle’; Lau falita, faluta v. ‘paddle’, n. ‘canoe’
   CNV: Ambrym faloh v. ‘paddle’, n. ‘paddle’; Paamese valis, valus ‘row, paddle’
   PMC *fa(s,z)ula v. ‘paddle’: Kiribati arina, Mokilese padil, Ponapean padil ‘paddle’

It is not clear whether PMP *be(R)(cs)ay and *paluja differed in meaning. As the Sichule comparisons show, PMP *paluja probably derives from a root *luja denoting a paddle, with the verb ‘to paddle’ derived by adding the causative prefix *pa-. *paluja is now widely reflected meaning both ‘a paddle’ and ‘to paddle’ but it may be that its use as a noun developed independently in various languages.

A third form attributable to POC, *sua(C), also has some reflexes glossed ‘to paddle’. However, the meanings associated with its putative reflexes are quite varied. These meanings include (i) ‘scull, in which a standing person holds the oar vertically’, (ii) ‘punt or pole a boat in shallow water’, (iii) v. ‘paddle’, (iv) n. ‘paddle’ and (v) ‘steer’. The range of meanings suggests an original reference to a standing person using an oar or pole to propel or to steer a boat. Compare also set (54).

(37) POC *sua(C) ‘to scull, row with oar held vertically’
   SS: ‘Are’are sua/hi ‘paddle against the wind’; Lau sua-la ‘punt, push a canoe with a pole’, sua-li ‘push against’
   CNV: Mota sua ‘to paddle, make a canoe voyage’, sua-va n. ‘paddling, canoe voyage’; Raga hua, Tangoa sua ‘to paddle’
   PCP sua ‘to scull, row with oar held vertically’: Fijian sua v. ‘scull, row, put an oar in two transversal poles lashed across the cross-beams near the deck of a canoe to help in rowing’; Rotuman sua ‘scull, paddle, oar’; Maori hua ‘steer, paddle’; Rennellese sua n. ‘ceremonial paddle with wide blade’, v. ‘go to a ship at anchor (by paddling)’
Compare also Samoan *suati* ‘balance pole of canoe’; Tikopian *sua/ti*, W. Uvean *hua/ge* ‘balance pole of sailing canoe’; Wayan (W. Fiji) *due* ‘scull, propel a boat by putting an oar or pole vertically into the water and twisting it about’, *i-due n.* ‘paddle, oar’.

### 7.3 PUNTING POLE

PMP *teken* ‘pole, staff’ was evidently continued in POC both as a noun *tokon* and as a transitive verb *tokon-i* ‘to punt or pole (a boat)’:

(38) POC *tokon* ‘staff, punting pole’, *tokon-i* ‘punt or pole (a boat)’

WOC: Gedaged *tok* ‘pole, stick, staff’; Tuam *to*, Barim (S.W. Umboi) *to* ‘punting pole’; Motu *do*, *doa* ‘to pole (a canoe)’, *to* ‘stay of house, prop of fence, brace’

SS: Ghari *tigon* ‘stick for stirring stones’

PCP *toko n.* ‘punting pole, staff’, *tokon-i* ‘punt (a boat)’: Fijian *i-toko* ‘staff, punting pole, *tokon-a* v. ‘punt a boat’; Wayan *i-toko* ‘staff, punting pole’, *tokon-i* v. ‘punt a boat’; PPN *tokon n.* ‘punting pole’ (contr. *tokotoko* ‘staff, walking stick’), v. ‘punt’: Samoan *to’o*, Tongan *toko*, Tuvaluan *toko*, Rennellese *toko n.* ‘punting pole’, v. ‘punt’

Compare WMP: Sangir *tekiq* ‘staff’; Malay *teken* ‘lean on, pressure’; Javanese *teken* ‘cane, walking stick’.

### 7.4 BAILER, BAILING

Three terms to do with bailing water from a vessel can be reconstructed at the PMP level, all of which are continued in PWMP, POC and PCP.

(39) PMP *limas* ‘bailer’

PWMP *limas* ‘bailer’: Cebuano *limas* 1. ‘bailer’, 2. ‘bilge-water’, 3. ‘bail water out’; Tagalog *limas*, Hova *dima* ‘bailer’

CMP: Boano (Seram) *limat* ‘bailer’

POC *lima(s), nima(s) ‘bailer’

WOC: Kilenge *na-lima*, Mangseng *lima* v. ‘bail’

PCP *nima ‘bailer’: Fijian *i-nima* ‘bailer’, *nima-ta* ‘bail it out (of a canoe)’

PMC *(l.n)ima ‘bailer’: Kiribati *a/nima*, Puluwat *niim* ‘bailer’

The following PMP reconstruction is given by Blust (1978b:94). Although ‘scoop or ladle out’ was probably the basic meaning, a number of Oceanic languages use the reflex of *asu* to denote a bailer.

(40) PMP *agsu* ‘scoop or bail out’

WMP: Javanese *agsu* ‘draw water’

CMP: Buru *asu-k* ‘scoop, dip or bail (water) with a scooper’

POC *asu v.* ‘scoop or ladle out’, *n.* ‘ladle, bailer’

ADM: Wuvulu, Aua *atu* ‘bailer, spoon, ladle’

WOC: Gedaged *yasi ‘scoop or ladle out’

CNV: North Efate *na/asu* ‘canoe bailer’, *m/asi* ‘bail’; Raga *ahua* ‘bale water, scoop up’
PCP *asu v. ‘ladle, scoop’: Fijian yacu v. ‘ladle, scoop’; Tongan ohu ‘ladle or bail out liquid’; Samoan asu v. ‘scoop, ladle or bail out liquid’; Maori ahu ‘bailer’

The next comparison shows a PPN term for ‘bailer’ and ‘bail’, derived from a PMP form which may have had a more restricted use.

PPN *tataa v. ‘bail out’, n. ‘bailer’: Maori tataa, Samoan tataa, Tokelauan tataa, Rarotongan tataa v. ‘bail, scoop’; n. ‘anything used as a bailer’; Tongan tataa ‘bail out’

Compare WMP: Cebuano tata ‘empty a container by turning it upside down’. This suggests PMP *tata v. ‘empty water from s.th.’.

7.5 PORTABLE FIREPLACE

Seagoing canoes in many places carry a heap of sand, or an old clay pot or wooden basin filled with sand or earth, for use as a fireplace. A reconstruction for such an apparatus can be made only at PCP level:

(42) PCP *taadravu ‘portable fireplace or oven’: Fijian taadravu, Tongan taalafu ‘portable fireplace or oven’; PPN *taalafu: Uvean talafu ‘cooking box filled with earth and small stones, formerly used in large sailing canoes’; Tokelauan taalefulefu ‘ashtray’; Rennellese taa-ngahu n. ‘fire’, v. ‘build a fire for illumination’

Compare also Mota tarowo ‘white ashes’; Arosi dohu ‘white ashes, a fireplace’.

The PCP form can be analysed into two elements: the second is clearly *dravu ‘fireplace, hearth’, which continues a POC form with the same gloss. The origin of *tata is less clear.

7.6 ANCHOR

See cognate set (44), section 8.

8. LAUNCHING AND BEACHING, ANCHORING, SHELTERING VESSELS

Outrigger canoes are normally launched from beaches and hauled ashore rather than anchored when not in use. Anchors are not carried on small canoes (which may be left to drift or tethered to the reef while fishing) but stone anchors were commonly carried aboard larger vessels.

8.1 ROLLERS OR SKIDS

A PMP term for canoe rollers or skids is well attested, with reflexes in Philippine, Maluku and Oceanic languages.

(43) PMP *lagen ‘rollers, skids or blocks to move or raise a boat’
WMP: Maranao langen ‘rollers’
CMP: Asililu lane-t; Buru lape ‘rollers’
POC *lagon n. ‘rollers’, *lagon-i v. ‘place rollers under a boat’
SS: Arosi ilrango n. ‘roller for canoes’, v. ‘place rollers under a canoe’
PCP *lapo, lagoni n. ‘rollers’, lagoni-i v. ‘place rollers under a boat’: Fijian lago v. ‘place rollers for a canoe, etc.’, lagoni ni waqa ‘canoe rollers’; PPN *lapo n. ‘rollers’: Tongan lango n. ‘supporting block or beam’; Samoan lago n. ‘support, prop, pillow, bolster’; Rennellese gango ‘coaster (as butt ends of coconut fronds or sticks) for dragging a canoe over the beach’; Tikopian rango n. ‘canoe skid or block’, v. ‘support (a canoe, etc.)’

PMC: *lapo ‘rollers for canoe’: Kiribati nango, Marshallese l’ang, Woleaian lango ‘rollers for canoe’

8.2 ANCHORING

There are two fairly well-supported PMP reconstructions to do with anchoring. In comparison (44), the WMP terms refer to an anchor while the Oceanic terms support a verbal reconstruction ‘be anchored or moored’:

(44) PMP *sauq ? n. ‘anchor’, ? v. ‘be anchored’
PWMP *sauq n. ‘anchor’: Tagalog sawoq, Toba Batak sawo, Malay sauh, Ngadju Dayak sauh n. ‘anchor’
CMP: Buru sau ‘anchor’ (possibly borrowed from Malay) (for ‘an anchor’ many CMP languages use a compound of PMP *batu ‘stone’ and *talîS ‘rope, cord’: Grimes, pers.comm.)
PEMP *sauq ‘? be anchored’
SHWN: Numfor sau ‘anchorage’
POC *jau(q) ‘be anchored or moored, come to anchor or rest’
SS: Arosi dau ‘(of canoes) come to rest’; Lau dau ‘come to anchor; alight, be stationary, at rest’; Sa’a deu ‘(of canoes) settle, be stationary’
PPN *tau ‘be anchored, come to anchor, alight, land, come to rest’; Tongan tau ‘anchor or moor a boat, park a car’; Samoan tau ‘moor, anchor’; Maori tau ‘come to anchor, ride at anchor, lie to’; Tikopian tau ‘(of a vessel) fetch up, come in to land’; Rennellese tau ‘come to land’

Comparison (45) appears to be represented only in WMP.

(45) PWMP *labuq ‘to anchor’ (also ‘fall, drop’): Malay labuh, Javanese labuh, Toba Batak labu, Tukang Besi (S.E. Sulawesi) labu, Ngadju Dayak laboh ‘let down, lower; Hova lavu ‘fall’ (cf. also Malay labuh-an ‘anchorage’)

8.3 PASSAGE OR CHANNEL, LANDING-PLACE

The PMP and POC term *sawaj or *sawaq appears to have been the conventional name for a channel for boats to pass through or to land, or an area of calm water giving safe anchorage. Blust (1983-84a:113) reconstructs *sawaq ‘channel’.

(46) PMP *sawa(n,q) ‘opening used by boats to pass through, channel or strait, safe passage or anchorage’
WMP: Chamorro sagaq ‘channel, inlet of water, narrow passage in reef’; Malay sawaj ‘breakwater’
POC *sawaq ‘channel in reef giving passage to boats, landing place, anchorage’
ADM: Lou mara-sa, Titan mata/ca, Wuvulu tawa ‘channel, passage between islands’
EARLY AUSTRONESIAN TERMS FOR CANOE PARTS AND SEAFARING

WO: Motu dava ‘lagoon in atoll, water in chasm or ditch’; Roviana savaga ‘strait between two islands’; Yabem sawa ‘space, empty area’;
SS: ‘Are’are tawa ‘channel in reef, landing place’; Sa’a tawa ‘landing place’
CP: Rotuman sava ‘passage or opening in a coral reef’; Fijian mata/sawa ‘landing place’; Wayan mata/cawa ‘beach’; Niuean ava ‘harbour, opening in reef, channel’; Samoan ava ‘channel, passage in reef; anchorage’; East Futunan ava ‘anchorage’; Maori awa ‘channel, landing place for canoes’ (cf. also Tongan ava ‘hole, aperture’, vaha ‘space between, strait, channel’)

PMC *sawa ‘channel in reef: Kiribati rawa, Marshallese tew, Ponapean -daaw, Trukese -taaw, Woleaian taawa ‘channel in reef’

There is clear evidence for a POC compound consisting of *mata ‘opening, entrance; focal point’ plus *sawav, with the sense ‘landing place for boats’. The South-East Solomon Islands and Kiribati forms suggest the POC compound had the form *mata-ni-sawav, or *mata-qi-sawav, with one of the two POC genitive particles *ni or *qi (Hooper 1985) linking the two nouns. However, the Admiralty Islands and Fijian forms do not reflect the genitive.

(47) POC *mata-sawav or *mata-ni/qi-sawav ‘landing place, channel in fringing reef giving passage to boats’
ADM: Lou marasa, Titan mataca ‘channel, landing place’
SS: Arosi maetawa, maitawa ‘a boat landing, landing place where the sea is calm’;
Kwaio maalitakwa ‘landing place, salt water’ (the Kwaio are an inland people);
Sa’a maalitawa ‘opening in shore reef, land-place’; ‘Are’are maritawa ‘landing place, channel’
CP: Fijian matasawa ‘landing place’; Wayan matacawa ‘beach’
MC: Kiribati mata n rawarawa ‘channel, gap in reef’

8.4 BOATSHED

While boatsheds, for building and sheltering boats, are common in the Malayo-Polynesian speaking region, no really widespread cognate set for such a building has been noted outside the Central Pacific group. Some Oceanic languages use a simple term reflecting PMP *balay ‘house or building, probably with open sides’, as Lou (Manus) pal ‘boatshed’. Others use a compound nominal whose components, as in English, are the words for ‘boat’ and ‘house’. It may be that speakers of PMP used such a compound but it is hard to rule out the possibility of independent parallel developments in the daughter languages. However, there is good evidence for a distinctive PCP term for boatshed, evidently incorporating the term for ‘make a sea voyage’ (see set (51)):

(48) PCP *(a)valau: ‘boatshed’: Fijian volau, Wayan volau ‘boatshed’; PPN: *af(a,o)lau ‘boatshed’; Tikopian aforau ‘canoe shed’, mata-aforau ‘canoe yard for sacred canoes’; Samoan aafo1au ‘long house, used e.g. for receiving guests’; Niuean afolau ‘temporary shelter’; Maori wharau 1. ‘temporary shed or booth’, 2. ‘canoe shed’; Tongan alafo1au ‘boatshed’ ( -1- unexpected; cf. Tongan ala folau ‘fit to go to sea’)
9. SEAFARING TERMS

A number of terms can be reconstructed at PMP or lower levels for concepts to do with going to sea and navigation. The following is not an exhaustive list.

9.1 EMBARK, RIDE

(49) PMP *sakay ‘embark, be aboard, ride (on a vessel, etc.); also ‘ascend, climb, mount’

WMP: Cebuano sakay ‘travel by sea, embark, ride on a boat, etc.’; Ilokano sakay, Bikol mag-sakay ‘ride in a boat’; Sangir sakaen ‘boat’ (from PMP *sakay-an ‘lit. thing to ride on’)

CMP: Asilulu saka ‘ascend, climb’; Selaru sai ‘climb, go up, ride, mount’

POC *sake ‘embark, ride on a canoe’ (prefix to numerals denoting number of crew carried by a canoe)

SS: Lau tae ‘embark’; ‘Are’are tae ‘climb, embark’ (prefix in tae taai ‘one man canoe’, tae rua ‘two man canoe’, etc.)

CNV: Mota saje ‘prefix with numerals denoting when men on board a canoe are numbered’

PCP *sake: Wayan (W. Fijian) cak ‘embark, go aboard’

PMC *(s, z)ake ‘ride on (a vessel, etc.)’: Mokilese dak, Ponapean dake ‘ride’; Carolinean tata ‘ride on s. th.’, Woleaian tage-a ‘ride on it, sail in it’, tet/taga ‘ride’

9.2 VOYAGING

Grimes (pers.comm.) points to the following set:

(50) PMP *sambal ‘sail, sail a far distance’

WMP: Makasar (Sulawesi) somba ‘sail’ (not known whether v. or n.)

EMP: Giman (S. Halmahera) sobal ‘sail’ (not known whether v. or n.)

In set (51) the Central Pacific forms clearly refer to long-distance sailing. There is some question whether the WMP forms are cognate with the Oceanic.

(51) PMP *pa-laSud ‘go down to the sea or coast’

WMP: Cebuano palawud ‘go to sea’; Ilokano palaud ‘go to the west, go down to the coast’; Tukang Besi (S.E. Sulawesi) hena?u ‘descend, go seawards, go west’

POC *palau (r) ‘go to sea, make a sea voyage’

SS: Tolo vola/volau ‘run, race’

CNV: Raga walaau ‘guide, steer, direct’; Mota wala/walau ‘paddle all together’; North Efate wo/wolau ‘steer canoe’

PCP *v(a, o)lau ‘make a sea voyage’: Fijian volau v. ‘make a sea voyage’, n. ‘boat house’; PPN *f(a,o)lau ‘make a sea voyage’: Maori wharau 1. ‘travel, particularly by water’, 2. ‘company of travellers’; Kapingamarangi horau ‘sail on a long journey’; Tikopian forau ‘voyage overseas, travel abroad’; Samoan folau ‘travel by sea, make a voyage; depart, sail’, foolau-ga ‘voyage’, folau-va’a ‘sailor’; Tongan folau ‘voyage, travel by sea’, folau’anga ‘boat in which one
voyages’, folau’ia ‘be constantly visited by ships’; East Futunan folau ‘navigation, sea travel’; Rennellese hogau 1. ‘ocean voyage’, 2. ‘canoe making an ocean voyage’, 3. ‘travellers on such a voyage’

MC: Kiribati borau, boborau ‘travel by sea’ (probably borrowed from a Polynesian source)

Compare also Nggela vinau ‘go by sea’; Proto Trukic *palua ‘navigator, navigational skill’; Nukuoro balia ‘expert navigator’.

Reid (pers.comm.) suggests that the MP forms derive from a PAN phrase whose constituents were *pa ‘go, towards’ and *laSud ‘sea, ocean’, giving the meaning ‘seawards (from inland)’ (contrasting with *daya ‘landwards, towards the interior (from the sea or coast)’. In some languages reflexes of *pa-laSud are opposed to a phrase of parallel structure meaning ‘go inland, go to the mountains’. POC continued *laSud as *lau(r) in its original sense (e.g. Mota lau ‘seawards, coastwards’) but evidently reanalysed the sequence *pa-lau(r) as a single morpheme.

Blust (1978a:216) offers the following:

(52) PEMP *ta(d,R)i ‘steer a course (in navigating)’
   SHWNG: Numfor kar ‘row (while facing one’s destination)’
   OC: Motu tari n. ‘rudder, steer-oar’, v. ‘steer a canoe’

The sound correspondences in (52) are regular but one would like further cognates to strengthen the comparison. Lau tari ‘steer, keep straight on’ and ‘Are’are tari/roto ‘steer a canoe (the steersman drawing the paddle towards himself with big strokes)’ show a superficial likeness but are not demonstrably cognate, because t in Malaitan languages derives from POC *s. Jackson (pers.comm.) reconstructs Proto Western MC *taraki ‘sail, travel by sea’, with reflexes in Trukese, Ponapean and Marshallese but again the resemblance to PEMP *ta(d,r)i seems to be superficial.

(53) PMP *biluk ‘? tack, sail to windward’
   PWMP *biluk ‘tack, sail to windward’: Javanese biluk, Malay belok, Ngadju Dayak biluk’, Tausug biluk ‘tack’
   OC: Sa’a hilu/hiliu ‘zigzag’

(54) PCP *sua ‘tack’: Rotuman sua ‘tack about, change tack’; Tongan hua ‘(of boat) change from one tack to another’

9.3 EXPERT SAILOR OR FISHERMAN

Reconstruction (55) consists of a compound with *tau ‘person, expert, owner’ as the first element and *tasi(k) ‘sea’ as the second. As reflexes of this compound have been noted only in Micronesia and Polynesia its POC status may be questioned. However, in our view the divergence of Micronesian and Polynesian either coincided with the breakup of POC or occurred soon after.

(55) POC *tau-tasi(k) ‘expert fisherman or sailor, mariner’
   PPN *tau-ta(h)i n. ‘expert fisherman or sailor’, v. ‘go fishing in the sea’: Samoan tautai ‘master fisherman, captain of a boat or ship’; Rennellese tautai ‘go fishing in the sea’; Tikopian tautai ‘skilled seaman, expert fisherman’; Tokelauan tautai
‘master fisherman, skipper or captain of a boat’; Tongan toutai n. ‘mariner, sailor’, v. ‘go fishing’, toutai-i ‘steer or pilot (a fishing boat)’
MC: Trukese sowu-set ‘master fisherman’; Carolinean sou-lee-set ‘skilled fisherman’
Compare also Kuanua te-na ta ‘sailor’ (lit. ‘one belonging to the sea’).

9.4 BOAT OWNER OR CAPTAIN

In set (56) the first element is again *tau ‘person, owner’. The agreement between Polynesian and Papuan Tip languages may be the result of parallel development. However, in both groups the formation of compounds with *tau is no longer productive so the chances are that the compounds in question are quite old.

(56) POC *tau (ni) waga ‘owner of a boat’
WO: Molima to ni waga; Muyuw ta-ga-ni-wag ‘canoe owner or captain’
CP: Fijian tau-kei ni waqa ‘boat owner’; PPN *tau waka ‘canoe owner’; Rennellese tau baka ‘canoe owner, act as a captain’; Tikopian tau vaka ‘canoe owner’

10. CONCLUSIONS

Little can be said about the presence or absence of terms for the canoe complex and seafaring in PAN itself. The reason is that almost all the known cognate sets for this domain are confined to the putative MP subgroup, which excludes the mainland Formosan languages.\footnote{The language of Yami I., off the south-east coast of Taiwan, is not a Formosan language. It subgroups with the Philippine languages spoken between Luzon and Taiwan.} It is possible that seafaring terminology was absent or rudimentary in PAN and that the technology for constructing and sailing outrigger canoes developed later, when MP speakers were presumably in the Philippines or Indonesia. However, it seems at least as likely that the Formosan languages have in recent centuries lost a terminology for outrigger canoe technology and seafaring that they once had. To a lesser extent, the absence of cognates may simply reflect the paucity of good dictionaries of Formosan languages.

For PMP upwards of 20 terms to do with watercraft and seafaring can be reconstructed. The comparative lexical evidence allows the following inferences. PMP speakers were familiar with outrigger sailing canoes. Various clues indicate that craft could be quite large. Hulls could be built up with planking. Skids or rollers were used to move vessels on land. A steering paddle was used. Large canoes probably carried anchors. Cargo and paddles, punting poles and bailers were carried on board.

Virtually all the reconstructable PMP canoe and seafaring terms were continued in POC and PCP. In addition, around ten terms can be attributed to POC and PCP that have not so far been reconstructed for PMP. While these figures are impressive, they probably represent only a small proportion of the total body of terms for canoes and seafaring used by the speech communities in question. In contemporary societies where large sailing canoes remain in use it is usual for a language to have over 100 terms for parts of the vessel alone.

Some of the POC and PCP terms which do not have known sources in PMP may be formal innovations. It seems likely, however, that in most cases the innovative forms replaced functionally equivalent PMP terms whose forms are not recoverable on present
This conclusion rests on logical grounds: the presence of certain terms strongly implies that other functionally connected terms also existed. Thus, while we cannot reconstruct with certainty a PMP name for ‘outrigger sailing canoe’, we can reconstruct PMP terms for ‘outrigger float’, ‘outrigger boom’, ‘sail’ and other relevant parts and equipment. It can therefore safely be inferred that PMP speakers were familiar with outrigger sailing canoes. Furthermore, it seems that all Oceanic languages have a general name for outrigger sailing canoes (as well as, usually, a variety of terms for specific types). It would be very surprising if such a name did not exist in PMP, even if it was not cognate with the term *wagka that has been reconstructed for PEMP and POC. The same reasoning applies say, to ‘canoe platform’, though with slightly less force. A term for such a platform, placed amidships over hull and outrigger booms, is well supported for POC (*patar) but not for PMP. However, a PMP term for ‘to load a vessel’ and ‘cargo, load carried by a vessel’ is reconstructable and it is therefore likely that PMP speakers built platforms on their larger, cargo-carrying outrigger canoes. Although a PMP term for ‘strake, plank (of canoe, etc.)’ is recoverable, implying familiarity with built-up canoes, no term for the end-decking of a built-up canoe – minimally, triangular end-pieces abutting the topstrake fore and aft – is attributable to PMP. But as end-decking of some sort is a functional necessity in built-up seagoing outrigger canoes it is unlikely that PMP seagoing canoes would have lacked these essential parts.

Further work will undoubtedly add to the body of relevant lexical reconstructions. However, it is unlikely to fill all the gaps. Often the lexical evidence is not fine-grained enough to allow us to recover certain details of vessel design. For example, the lexical reconstructions for the sailing rig do not indicate whether the sails used by PMP speakers were triangular, crab claw or rectangular or whether their vessels had fixed or moveable masts (or both). Nor do the lexical reconstructions tell us whether PMP speakers made canoes with single or double outriggers (or both). There is another reason why it is sometimes difficult to trace changes in technological details through comparative linguistic evidence: whereas we can safely infer knowledge of certain things by the presence of terms for them, we cannot so readily infer ignorance from the lack of reconstructable terms. Consider the double-hulled canoe. A term for double canoe can be attributed to PPN but not to POC. Can we therefore conclude that such a craft was unknown to POC speakers? Certainly not. Inability to reconstruct a term for a certain referent in Proto X does not prove that the referent itself, and a term for it, were unknown to speakers of Proto X. The term may have been lost in all or most daughter languages and its former existence obscured.

The moral we might draw at this point is a rather obvious one: that for doing culture history several disciplines are, ultimately, better than one. Linguistics, and comparative technology need each other, just as both need archaeology and comparative ethnography, to corroborate each other’s evidence on certain questions and to provide testimony on points where the other disciplines are mute. It is, of course, important that each field of study contribute its own independent witness before synthesis is attempted. The challenge then becomes how to combine judiciously the evidence from different disciplines.
TERMS FOR RICE AGRICULTURE AND TERRACE BUILDING IN SOME CORDILLERAN LANGUAGES OF THE PHILIPPINES

LAWRENCE A. REID

1. INTRODUCTION

The purpose of this paper is to examine the reconstructable terms for wet rice agriculture in the Central Cordilleran languages of the Northern Philippines, in an attempt to throw light on problems relating to the antiquity and function of the rice terraces found throughout the area where these languages are spoken. The age of the rice terraces has been estimated by some to be in the range of thousands of years, but by others to be in the order of several hundreds of years. Their primary function today is to provide a suitable environment in the rugged terrain of the region for the production of wet rice. Whether this was the function for which the terraces were originally constructed has been questioned in recent anthropological studies which accept the relatively great antiquity of the terraces but view the introduction of wet rice in the region as a relatively recent result of agricultural intensification.

2. BACKGROUND

2.1 GEOGRAPHY

The northern half of the island of Luzon in the Philippines is characterised by a highly complex chain of mountains known as the Cordillera Central. Rising to nearly 3,000 metres they extend for some 300 kilometres in a north-south direction, effectively separating the dry, narrow, coastal strip of north-western Luzon (the Ilocos provinces) from the broad, fertile valley of the Cagayan River in the north-central part of the island (the provinces of Cagayan and Isabela). The Cagayan River has its headwaters in the southern reaches of the Cordillera Central and flows in a northerly direction along the western flanks of the range, picking up the outflow of a number of tributaries draining valleys which, in some cases, reach into the very heart of the range.

The largest of these tributaries is the Chico River, which flows through the centre of the Bontoc area and was possibly the route by which the ancestors of the mountain peoples first gained access into the central and southern sections of the Cordillera.

For many years the Cordillera Central constituted a single political entity known as Mountain Province. It consisted of five sub-provinces, Benguet, Ifugao, Bontoc, Apayao and Kalinga. Now, these entities have been reconstituted as separate provinces, Benguet, Ifugao, Mountain (formerly Bontoc) and Kalinga-Apayao.

FIGURE: SUBGROUPING OF CORDILLERAN LANGUAGES
2.2 ETHNOLINGUISTIC GROUPS

Northern Luzon is populated by some six and a half million people, close to one million of whom actually live in the provinces of the Cordillera Central. All these people belong to a single, fairly clearly defined, linguistic subgroup. Generally called Cordilleran (or perhaps more appropriately Northern Philippines), it has two major branches, Northern Cordilleran and Meso-Cordilleran. Two languages (Ilokano with some four million speakers and the major trade language of the Cordilleran area, and Arta, a Negrito language with about a dozen remaining speakers) appear to be separate first order branches of this family.

Northern Cordilleran consists of two branches. One is comprised of the languages of the Cagayan River Valley, such as Ibanag, Itawis, Yogad and Gaddang; the other comprises the languages of the eastern coast of Northern Luzon and the Sierra Madre mountains, the great majority of which are spoken by small groups of Negritos commonly referred to as Dumagat. The Meso-Cordilleran branch consists of a small group of Negrito languages called Alta spoken in scattered areas of the southern Sierra Madre and the South-Central Cordilleran branch. South-Central Cordilleran in its turn consists of two branches, South Cordilleran and Central Cordilleran.

The Southern Cordilleran languages, Ilongot, Inibaloi, I'wak, Karaw and Kallahan are spoken throughout the southern reaches of the Cordillera and surrounding lowland areas. One other member of this family, Pangasinan, is spoken only in the lowlands in Pangasinan Province.

The Central Cordilleran languages with which this paper is primarily concerned are Isinai (now spoken only in two small lowland towns in the province of Nueva Vizcaya), Kalinga and Itneg, and the Nuclear Cordilleran group comprised of the Ifugao languages (Kiangan, Batad, Amganad, Bayninan, etc.), Balangaw and Bontok-Kankanay (Bontok, Tukukan, Sagada, Lepanto, etc.). It is the speakers of Nuclear Cordilleran languages who have developed rice terrace culture in the Philippines to its fullest extent.

Their internal relationships are demonstrated in the Figure.¹

2.3 WET AND DRY RICE

As in most other areas of the Philippines the staple food in the Cordillera is rice. Various other crops supplement rice as the staple, especially in those areas where insufficient is grown to be able to meet the need. Principal additional crops include root crops, primarily sweet potato, as well as taro, yam and cassava and grains such as millet and sorghum, with corn also frequently grown.

Rice is grown with varying degrees of success in this area depending on the type grown and on various ecological and environmental factors. Two types of rice agriculture are found, dry rice, grown in shifting swiddens, and wet rice, grown in terraced pondfields. According to Scott (1958:93) only wet rice techniques are used by the Ifugao, Bontok, Kankanay and other groups of the high mountain regions of Benguet Province; and only dry rice techniques are used by the Isneg and Kalinga, that is in the lower elevation Kalinga and Apayao Provinces. Dry rice cannot be grown successfully at the higher altitudes where the Ifugao and Bontok people live. However, at least in the southern Kalinga municipalities of

¹ Abbreviations are listed in Appendix 1.
Tinglayan and Pinukpuk, wet rice is grown and is the main food source (SIL 1980:iv), and terminology associated with wet rice agriculture is found.

In Bontoc and Ifugao in particular, wet rice agriculture has resulted in extensive modification of the ecosystem with valley walls and sometimes precipitous mountainsides being carved into terraces whose walls, in Bontoc and in some areas of Ifugao, are built of rocks quarried from the mountainsides or in some cases carried up thousands of feet from the river bed below. Conklin (1980:38) states that in Ifugao alone there are 20,000 kilometres of pondfield walls, 7,000 of which are rock walled. Complex systems of irrigation canals have also been built to provide the constant flow of water necessary for the successful growth of wet rice.

The expenditure of labour necessary for the development of new rice fields and for their maintenance and repair is extremely high. Every heavy rainstorm results in some wall being eroded or collapsing onto the terrace below it and after a typhoon considerable effort must be expended to return damaged fields to a productive state again.

Activities associated with the growing of rice have therefore become central to both Ifugao and Bontok societies. Rituals must be performed at the beginning of the soil preparation season and at every distinct phase of activity, such as preparation of seed beds, transplanting of the seedlings, cleaning of the terrace walls, harvesting and so on. In Bontoc, the formation of the working groups (ʔubbu) which will do the soil preparation and related activities is a highly structured social activity and is hedged about with religious sanctions to ensure ultimately a good rice harvest and healthy children in the village (Reid 1972).

3. DATING THE TERRACES

3.1 INTRODUCTION

Looking at the magnitude of the task that the Ifugaos and Bontoks have accomplished, one cannot help but wonder just how long they have been at it. Various hypotheses have appeared in the literature, ranging from Beyer’s (1955) claim that the terraces were developed by an in-migration of “Late Indonesian Type B” terrace-building people some 2,000-3,000 years ago, to Keesing’s (1962) claim that the Cordillera was probably almost completely unpopulated until settlers with a knowledge of wet rice cultivation fled to the mountains to avoid Spanish taxation and persecution within the last few hundred years and developed them. All these positions are carefully summarised and discussed in Bodner (1986).

Most researchers today (including Scott, Bodner and Conklin) have concluded on the basis of ethnographic and ecological studies that the introduction of wet rice agriculture into the Cordilleran area although apparently occurring at different periods in different areas must have postdated the actual settlement of the area, and that early settlers in the area were dependent, not on rice for their staple food, but on root crops such as yam and taro, as well as grains such as millet, sorghum and Job’s-tears.

Although I do not believe that linguistic data can provide us with a measure of the actual time that two languages have been separated, the reconstruction of protoforms can provide us with some indication of the life and times of the speakers of that protolanguage. With this in mind I have attempted to compare lexical items associated with pondfield agriculture to
determine if possible whether terrace construction preceded or followed the dispersal of those languages whose speakers are today most closely associated with their development and use.

In the following section I discuss the terminology of terraced pondfield construction. It will be noted that the knowledge of this technology must have predated the dispersal of the Nuclear Cordilleran languages in that nearly all the relevant terminology is reconstructable to Proto Nuclear Cordilleran. It will also be noted that in many instances the terminology is either unique to this subgroup, or it is a specialisation of more general terminology reconstructable to a deeper time depth but without reference to terraced pondfield construction, the implication being that the technology was a local adaption to local environmental conditions, rather than an imported technology. The complete data on which this paper is based is found in Appendix 2.

3.2 PONDFIELD CONSTRUCTION AND MAINTENANCE

(1) PCo, PNoCo *payaw ‘pondfield’; PS-CCo, PSCo, PCCo, PNuCo *payew ‘pondfield, terraced pondfield’.

(2) PCCo, PKI, PNuCo *?a:lak ‘irrigation canal’. The presence of a cognate in Isinai has yet to be confirmed. The term may only be reconstructable as far back as Proto North-Central Cordilleran.

(3) PS-CCo, PNuCo *?ugbu ‘an exchange labour working group’. The intense labour required for the construction of terraced pondfields was probably the reason for the formal development of cooperative working groups in which the members take turn about in receiving the labour of the group in their fields for the day. Although these working groups may be asked to do any kind of labour, the primary function of the group is to assist in the building, maintenance and cultivation of terraced pondfields. In Guinaang, Bontoc, working groups are reconstituted annually, just prior to the beginning of the soil preparation season, and their first ritual work is the turning of soil in a pondfield in Bagiw, probably the first area to be cultivated in the area (Reid 1972). The inclusion of an apparent cognate in Inibaloi pushes the antiquity of this term back to Proto South-Central Cordilleran. Whether or not its use at this period implies terraced pondfield construction is debatable, since the technology has apparently been introduced only relatively recently into Inibaloi.

Although there is nothing in the phonology of the Inibaloi term to imply a borrowing, it is possible that it was in fact borrowed from a neighbouring Central Cordilleran language along with other terminology relating specifically to pondfield construction, and therefore should only be reconstructed back to Proto Nuclear Cordilleran.

(4) PS-CCo, PSCo, PCCo, PNuCo, PKI *pa:nad ‘level area; to level’ (< PCo *pa:naj ‘level area, plain’). The levelling of ground in the mountains for other than the preparation of a residential site generally implies the development of a pondfield terrace, since normal swiddening activity in mountainous areas is typically accomplished on natural hillsides. The development of the Proto Cordilleran term for ‘level area, plain’ in Proto Nuclear Cordilleran usually relates specifically to the development of a pondfield terrace. In Bontok, as in the Ifugao languages it also means the hard mud layer beneath the cultivated surface of a pondfield, and in Bontok is the name of a spirit that must be placated prior to any agricultural activity in the field.
(5) PNuCo *dubdub 'movement of soft mud'. Both Bontok and Ifugao have terms which relate to soft, running or oozing mud associated with pondfields. In Bontok it specifically refers to mud formed in the process of hydraulicing, the method by which hilltops are scoured out with running water to develop a terrace.

(6) PNuCo *ʔa:deg 'to fill with stones and dirt, as the space behind a stone wall during the process of constructing a terrace'. This term, although having the general meaning of 'dry fill' typically applies to the fill used in terraced pondfield construction.

(7) PNuCo *li(:)sang 'clods of dried mud or dirt'. Specifically, in Bontok and Ifugao, this term applies to either the construction, maintenance or soil preparation activities of terraced pondfields.

(8) PS-CCo, PSCo, PCCo, PKI *tuping 'stone wall'; PNuCo 1. 'stone retaining wall', 2. 'any orderly heap of objects'. In Nuclear Cordilleran languages this term applies generally to any retaining wall, although specifically to the rock retaining walls of terraced pondfields.

(9) PNuCo *pegnad 'foundation'. Specifically applied to the foundation layer of large rocks in the construction of terrace retaining walls.

(10) PNuCo *pangdew 'stepping stones built into the wall of a pondfield'. This term was probably morphologically complex, with pang- being an instrumental prefix, however, to my knowledge, none of the northern languages of the Philippines retains a lexical item such as (ke)dew or (ge)dew which could have been the source of the final syllable.

(11) PS-CCo *b(a,e)neta; PSCo *beneη 'dike for retaining water'; PNuCo *banη 1. 'top section of a pondfield terrace retaining wall', 2. 'pondfield'. A mud dike is built on top of a pondfield retaining wall to stop water from escaping from the field. In some Bontok dialects the term is used as a metaphor for the field itself.

(12) PNuCo *ʔetʔet 'to pack holes with mud' (cf. Ilk ?etʔet 'tight; cause to become tight'). This term applies specifically to the packing of holes in the upper sections of a pondfield retaining wall to prevent water seepage. In Bontok the term is used as a noun and applies to the inner wall of the pondfield dike.

(13) PCo *pakpak 1. 'to slap, to beat with a flat surfaced instrument', 2. 'to fasten two flat surfaces together'; PNuCo 1. 'to fasten two flat surfaces together', 2. 'to stick mud on something, as the top of a retaining wall to prevent leakage'. This is a general, onomatopoeic term in a number of Philippine languages to describe a slapping sound. In Nuclear Cordilleran languages the term has been narrowed to apply specifically to the action of slapping mud onto something, usually the top or sides of a terraced pondfield dike to prevent water seepage.

(14) PCo *gi:waŋ/*gu(:)waŋ 'to make an opening or hole through; to make a breach in'; PNuCo *gu(:)waŋ 'breach in a pondfield dike'. A breach is made in pondfield dikes to allow for controlled water drainage.

(15) PCo, PNoCo *teneg 'division in a field'; PNuCoX *batneη 'stone boundary marker in a field; mud dike in a pondfield' (probably a fused form of *batu-n teneg 'stones which are boundary markers').

(16) PCo *pideR 'be adjacent to'; PNuCo *pidel 'that part of a pondfield which is adjacent to the base of the retaining wall that supports the pondfield above it'.
(17) PNuCo *ta:ban ‘the cleared ground bordering a pondfield, either the mountain slope above or adjacent to it, or the area below its retaining wall’.

(18) PNuCo *saml ‘preparation of a pondfield prior to transplanting rice seedlings’. Although found with this meaning only in Bontok, it is probable that the term had this meaning also in Proto Ifugao. Present-day Ifugao languages have the term only in a derived form, hinamal ‘cooked rice’, apparently originally meaning ‘food from prepared pondfields’.

(19) PNuCo *lewey ‘to dig deeply’. A way of soil preparation, specifically applied in Bontok to deep pondfield cultivation.

3.3 THE RICE PLANT AND ITS PARTS

In this section I examine the terms for rice in an attempt to determine whether the speakers of Proto Nuclear Cordilleran knew the plant. It will be seen that terms reconstructable to this level refer not only to the plant (probably pondfield, or wet rice) but also to various parts of the plant, and to stages of its growth. Furthermore, most of these terms can be shown to be reflexes of terms with similar meanings in earlier protolanguages. Some of these terms, such as (22) and (26-31) could apply to grain crops other than rice. However, (20) and (23-25) refer specifically to pondfield rice.

(20) PAn *pajey ‘rice plant’; PCo ‘pondfield rice plant; unthreshed pondfield rice’; PNoCo, PS-CCo, PSCo, PCCo, PNuCo, PKI *pa:gey ‘pondfield rice plant; unthreshed pondfield rice’. Two terms for rice plant have been reconstructed for Proto Austronesian with reflexes in Philippine languages. Only reflexes of PCo *pajey are found in Nuclear Cordilleran languages, that is those spoken in the area in which only wet rice can be grown. Reflexes of the other term, PCo *?emay (see (21) below), are found only in Northern Cordilleran languages: Isneg, Malaweg, Itawis, Ibanag, Atta and Gaddang, where it typically refers to dry rice grown in swiddens. It is possible that the semantic distinctions noted here for Proto Cordilleran reflect distinctions at much earlier levels, and perhaps go back to Proto Austronesian, although there are both Formosan and Philippine languages which reflect the latter term with the meaning ‘cooked rice’ (Revel 1988). The Bontok and Balangaw borrowings of a Northern Cordilleran reflex ?ammay meaning ‘good’, or ‘tasty’, and which can perhaps be associated with the meaning ‘cooked rice’, must be relatively recent (because of the phonological developments in the term), although the latter meaning does not appear in any available Northern Cordilleran dictionary or wordlist.

(21) PAn *Sem(e)y; PPh *hemay ‘rice plant, cooked rice’; PCo, PNoCo *?emay ‘swidden rice plant; unthreshed swidden rice’.

(22) PCo *dayaket ‘general term for any variety of glutinous rice, cassava, or taro’. The distinction between glutinous and non-glutinous varieties of rice is found throughout the Cordilleran area. Only the general term for glutinous varieties however is reconstructable. Bontok puddaw ‘non-glutinous rice’ is apparently borrowed from Ilokano pudaw ‘white, light-complexioned, light-coloured’ (note also Lepanto Kankanay pudawan ‘white, light-coloured’), since the Bontok form does not have the expected reflex, -ew, of the final diphthong (PCo *-aw > PS-CCo *-ew).

(23) PCo *penar, PNuCo penal ‘rice grain used for seed’. This term is used specifically for rice seed that is sown in a seed bed from which seedlings will be transplanted into a pondfield. The verbal form means ‘to plant a rice seed bed’. None of the Nuclear Cordilleran
languages reflects PPh *binhiq ‘seed’, which in most Philippine languages refers to any seed for planting.

(24) PNuCo *padug ‘rice seedling’.

(25) PS-CCo, PSCo, PNuCo *tumed ‘to transplant rice seedlings’. Although there is nothing in the phonology of the Inibaloi term to imply a borrowing, it is possible that it was in fact borrowed from a neighbouring Central Cordilleran language along with other terminology relating specifically to pondfield construction, and therefore should only be reconstructed back to Proto Nuclear Cordilleran.

(26) PNuCo *seldin ‘stage of rice development when seed heads have appeared and are beginning to ripen’.

(27) PAN *ZeRami(h,O) ‘stubble’; PCoX *daga:mi ‘rice stubble’. This form reflects an irregular development of *R as g in all the South-Central Cordilleran languages in which a reflex has been identified, as well as in Ilokano. It is similar in this respect to a large number of forms in which it seems PAN *R irregularly changed into PCo *g. On the other hand, it could have been borrowed from some Northern Cordilleran language at one or more times in the history of these languages.

(28) PNuCo *?u:gas ‘a grain of unhusked rice which has fallen from a harvested rice stalk’.

(29) P|nuCo *la(:)sin ‘a branch of a rice panicle’.

(30) PCCo, PNuCo, PKI *dugi ‘husk of rice’.

(31) PCCo *?u:pek ‘bark of a tree, peeling’; PNuCoX *?u(:)pek ‘rice bran; what remains after rice has been pounded and winnowed’.

3.4 PREPARATION OF RICE FOR FOOD

Almost all of the following terms, from harvesting, bundling, storing and winnowing to cooking and serving are today primarily used with reference to rice. However, as Bodner (1986) makes clear, the terms may also be used with reference to other grain crops, such as millet, and in some cases also to taro.

(32) PAN *a(n,N)i; PPh, PCo, PNuCo ?a:ni ‘harvest’.

(33) PCo, PNoCo *rakem; PCCo, PNuCo, PKI *lakem ‘harvesting knife’.

(34) PCo, PNoCo *beijel ‘to press or squeeze together’; PNuCo *beijel 1. ‘bundle’, 2. ‘a bundle of harvested grain’.

(35) PCo, PNoCo, PSCo, PCCo, PKI, PNuCo *betek ‘bundle, as rice; the tie used to bundle things together; the smallest unit of bundles of rice’.

(36) PCo *?itiq ‘a unit of harvested rice bundles’; PNoCo *?itiq ‘four bundles of harvested rice’; PNuCo *?itiq ‘five bundles of harvested rice’. The Kalinga form is possibly an early borrowing from a Northern Cordilleran language, in that it refers to only four bundles.

(37) PCo *?yu:yun ‘a unit of harvested rice bundles’.
(38) PCo, PNoCo, P NuCo *?u(:)pu ‘a unit of harvested rice bundles’. This term typically refers to a substantially large number of bundles of harvested rice, one ?u:pu being either 400 or 500 bundles. The Gaddang reflex has an initial verbal prefix m-, and means ‘to transport or carry goods’. The widespread distribution of these terms suggests the presence of a rice trading network in very early times.

(39) PCo, PSCO, PCCo, P NuCo *ku(:)tim ‘to remove the husk of freshly harvested grain with fingers or teeth in order to eat the grain raw’.

(40) PCo, PNoCo, PSCO, PCCo, PKI, P NuCo *?a:laq ‘granary’.

(41) PCo *?aga:maq ‘sleeping house for unmarried people’. Although glossed as ‘granary’ in Ilokano, Tukukan, Lepanto, and in some other Bontok dialects, the meaning given for the Ifugao cognates is probably the original meaning, since ?a:laq has a much wider distribution with the meaning ‘granary’.

(42) PCCo, PKI, P NuCo *?u:lut ‘to strip grain from rice panicles by pulling them through one’s hands; straw that is left after grains have been stripped off’.

(43) PPh *bayu ‘to pound rice’; PCo, PNoCo, PSCO, PCCo, PKI, P NuCo *ba:yu ‘to pound with pestle and mortar for the purpose of removing husk from grain’. One other term has been reconstructed with this meaning for Proto Philippines: *lebek (Zorc 1971). In Cordilleran languages, definitions of the latter usually imply beating for the purpose of crushing, for example, Lpn lebek ‘to beat small, to grind, to pound’; Ilk lebbek ‘to pound, smash, crush in a mortar with a pestle’. In Bontok the term is used for a ceremonial rice pounding during a wedding ceremony. The rice is placed in an elongated trough-like mortar, the lebkan, which according to local tradition was originally used for pounding and crushing sugarcane, prior to the introduction of cane mills. I suggest that the term may have originally meant ‘to pound sugarcane’.

(44) PAn *lesuI) ‘mortar’; PCo, PCCo, PKI, P NuCo *lusuI) ‘mortar, for pounding grain’.

(45) PPh *qaSelu; PCo, PNCo, PSCO *?a?lu; PCCo, PKI, P NuCo *?a1?u ‘pestle’.

(46) P NuCo *?asud ‘method of pounding in which two or more persons pound by alternating their pestle strokes’.

(47) PCCo *bina:yu ‘pounded rice’.

(48) PPh *(O,q)eta ‘unhusked rice kernel; rice husk’; PCo, PNoCo, PSCO, PCCo, PKI, P NuCo *?eta 1. ‘raw, uncooked’, 2. ‘an unhusked kernel of rice mixed with husked or cooked rice’.

(49) PPh *tahep ‘winnow rice’; PCo, PNoCo, PSCO, P NuCo *ta?ep ‘to winnow; husk of grain’.

(50) PPh *bijawu; PCo *biga:wu; PS-CCoX *liga:wu ‘winnowing basket’.

(51) PAn *lu(N)luh ‘cook’; PCo *lu:tu ‘to cook by boiling; ripe’; PS-CCo *lu:tu ‘to cook by boiling, especially to cook rice; ripe’.

(52) P NuCo *teleb ‘to pour off excess water from cooking rice’.

(53) PCo, PNoCo, PCCo, PKI, P NuCo *?a(:)sug ‘to place a pot on the fire, for the purpose of cooking rice’.
An examination of the above sets of terms leads to the conclusion that the speakers of Proto Cordilleran not only knew about rice, but it was harvested, stored in granaries, pounded with a pestle and mortar to remove the husk, and cooked for food. Terms both in Cordilleran and non-Cordilleran languages for cooked rice simply translate as ‘food’, or ‘that which is eaten’ (Tag *kanin, Bon *makan), or ‘that which is cooked’ (Ilk *inapoy, Ibl *nilutu, Itg *asug) and imply that at least for these groups, rice has been the primary food source for a considerable period of time. However, the fact that no single term for cooked rice can be unambiguously reconstructed for Proto Cordilleran, might imply that at earlier times, other crops such as taro and millet may have formed a much more prominent part of the diet than they do today.

The speakers of the parent language of the South-Central Cordilleran subgroup appear to have been cultivators of wet rice in pondfields. Terms for the pondfield itself, for levelling fields, and the social groups formed for this purpose, for the mud dike used to retain water in the pondfield, and most significantly the term for the planting of rice seedlings are reconstructable to this time depth. There is no reason to believe from this though that these people were builders of walled pondfield terraces of the type which are ubiquitous today in much of the Cordillera. There is certainly no reason either to believe that they were living in the mountains.

At least some of the speakers of Proto Nuclear Cordilleran, however, were clearly masters of walled, pondfield terrace construction in a mountainous environment. They had mastered the art of building rock retaining walls, and had special terms for the foundation row of rocks in the terrace wall, and for protruding rocks built into the wall as a stairway. They also had a term for the mountainside abutting the inner edge of the terrace. They knew how to construct irrigation canals to bring water from higher elevations to the pondfields, and had a term for the breach in a pondfield dike to permit water to flow to terraces below. Terms for the bundling and counting of large amounts of rice were also used, and trading between groups probably occurred.

It is significant that the majority of the terms that are related to pondfield construction do not appear to have cognates outside the Nuclear Cordilleran languages. The few that do have external cognates do not apply specifically to rice terrace construction in the external languages, from which we may infer that the ability to shape the local terrain was a skill that was locally developed and mastered, not one that was brought into the area by some immigrant population with a knowledge of rice terrace construction.

It is important to note that pondfield construction had apparently developed prior to the dispersal of the Nuclear Cordilleran languages. There is no way linguistically to determine what that time frame was, but given the considerable internal differentiation of each of the languages in the family (each is a complex dialect chain with poor mutual intelligibility between the major population centres) and the syntactic and phonological differences between each of its members, I would think that at least fifteen hundred to two thousand years must have passed since Proto Nuclear Cordilleran began to split up.

Archaeological studies by Bodner in the village of Tukukan, Central Bontoc, lead her to a somewhat more conservative view of the role of rice in early Cordilleran populations than the one outlined above. Her analyses of excavated materials established (among others) the following: permanent villages were established in the Bontoc area by at least AD 570-680;
the inhabitants were spinning, weaving, using stone tools, earthenware ceramics and wooden products; they were able to acquire iron through a limited trading system; they possessed the technology for constructing stone walls; they practiced agriculture and augmented it with hunting and gathering; rice was not a major part, if present at all, of the subsistence base in AD 570-680 nor by AD 1410-1450; however grain, legumes, sorghum, millet, root crops and sugarcane probably were (Bodner 1986:422). She further states (p.226), "That rice was known is not questioned, but that it was grown by all groups which knew of it at the time of Proto Cordilleran or even Proto Nuclear Cordilleran is highly unlikely, particularly in light of the crop's uneven distribution throughout the Cordillera during historic times".

Bodner (p.210) further cautions that, "terracing must not be inextricably linked with irrigation, irrigation must not be considered synonymous with mountain stream diversion and pondfields must not be concatenated with wet rice cultivation. Harvesting and storing in bundles is a practice applied to rice and millet alike. Similarly, preparation by pounding in a mortar and winnowing is not necessarily associated with rice and only rice".

Bodner has assembled a substantial set of data in support of the above hypotheses. It is clear that the distribution of pondfield terraces was almost certainly far more restricted in prehistoric times than it is today. It is also clear that even within what is today a single language area, different ecological conditions demanded flexibility in the types of crops that are grown. She has furthermore made a convincing case for a far more extensive use of pondfield taro and of grains other than rice in prehistoric times than is common in most Cordilleran areas today.

Nevertheless she states (p.465) that, "Without securely dated rice remains in archaeological contexts throughout insular Southeast Asia, its presence, absence, and importance in the early Austronesian crop inventory remain matters for speculation...". She furthermore cautions "reservations are in order with regard to accepting the linguistic argument for its early dominance".

The linguistic evidence should, however, dispel any question of whether or not rice was present in the early Austronesian crop inventory. It will remain a matter for speculation only as long as the linguistic evidence is ignored. It was reconstructed for Proto Austronesian long before the recent discoveries of the great antiquity of rice in southern China, at least two thousand years prior to the estimated period during which Proto Austronesian developed in Formosa. Bodner recognises that rice must have been known by speakers of early languages in Northern Luzon. The major question that arises then is whether there is any linguistic evidence that early settlers in the high Cordillera (probably speakers of Proto Nuclear Cordilleran) were practicing rice cultivation, as their Proto Cordilleran ancestors undoubtedly were, or was the practice discontinued until comparatively more recent times when rice varieties which could prosper in the high mountain environments had evolved? The answer is a qualified yes. It is quite clear, as indicated above, that Proto Nuclear Cordilleran speakers were pondfield terrace builders. Whether or not they were used for rice cultivation at the time of the dispersal of the language groups that constitute the Nuclear Cordilleran subgroup depends on whether the terms that uniquely identify rice cultivation can be shown to be inherited from earlier protolanguages, or whether they can be shown to be borrowings from some non-Nuclear Cordilleran group, from whom they would presumably have brought in the seed, the plants or the technology associated with rice agriculture.
A number of terms, such as ba:yu ‘pound rice’, and ?a:laŋ ‘granary’, could be either inherited or borrowed, since no diagnostic sound change occurred in these words which would enable us to make such a determination. There are, moreover, a few terms which do not have the expected reflexes, and may be borrowed. One of these is dagamí ‘rice straw’ in which g appears as a reflex of *R, rather than l, the expected reflex in Central and Southern Cordilleran languages. However this form shows irregular reflexes in a number of different languages, and its reconstruction is uncertain. There are a number of forms which are reconstructed with *R, which reflect g in all of the Cordilleran languages, including Ilokano, where the expected reflex is r, and this form appears to be one of them.

Another such form is the widespread term reconstructed as PAn *beRas ‘husked rice’. Isneg (Northern Cordilleran) has the correct reflex – baggt, as does Pangasinan belas, but Ilokano does not, having irregular reflexes both for *e as well as for *R, bagas (expected berras). Both Bontok begas, and Ifugao bogah show a medial g instead of l, and therefore appear to be borrowings. But, this form is also of interest because in the Nuclear Cordilleran languages its primary meaning is not ‘husked rice’ but ‘substance, kernel, contents’ and with appropriate affixes (namgas, nabygas, etc.), it means ‘to bear fruit’. It is no longer primarily associated with rice.

These extended meanings are also found in Isneg, and presumably in other Northern Cordilleran languages. The complete dictionary definition for Isneg baggt (Vanoverbergh 1972:109) is: “’Rice (when pounded or unpounded); seed, kernel; fruit; tuber, rhizome, bulb, corn; substance, contents’; magbggt ‘To bear fruit’; nabgt ‘Well-filled, full of grain’; tagbggt ‘One kernel’; agbggtan ‘A basket used for storing grain’; baggt udan (lit. ‘substance of rain’); ‘Hail’ pmsgt ‘The female tutelary spirit of Sabangan’”. The form is interesting because it suggests that Nuclear Cordilleran could have borrowed the term (at a very early date) from Northern Cordilleran, prior in fact to the development of consonant gemination following *e, a rule which is shared by many of the languages in this subgroup, as well as by Ilokano. But if it was borrowed, it was not borrowed with the meaning ‘husked rice’, so it does not throw any light on the issue at hand.

But the majority of terms given above are clearly not borrowed from any lowland language. The word for the rice plant itself, if borrowed after the sound changes that characterise the Southern and Central Cordilleran languages would have a final -ay, not -ey, as have scores of such words that have been recently borrowed. Similarly, PNuCo tu:ned ‘to transplant rice seedlings’ could not be a recent borrowing from any Northern Cordilleran language where *e is generally reflected as a. Nor, for the same reason, could PNuCo *penal ‘rice seed; to sow a rice seed bed’ be a borrowing from any lowland language. It is directly inherited from PCo *penar ‘rice seed’.

4. CONCLUSION

In summary, there seems to be conclusive linguistic evidence that pondfields were being constructed by the people who spoke the language ancestral to the Central and Southern Cordilleran languages, and that the Central Cordilleran speakers who migrated into the higher regions of the mountains developed the techniques of terraced pondfield construction, so that by the time of Proto Nuclear Cordilleran, they had become masters of the construction of rock walled terraces and of complex irrigation systems. What those terraces were used for is not quite so clear. That they were probably used for rice in at least some areas, is suggested by a number of terms which could also perhaps have applied to other, non-irrigated crops.
But the reconstruction at this level of terms for the rice plant itself, rice seed and rice seedling, could only apply to pondfield rice agriculture. That terraced pondfields may also have been used for taro cultivation in some areas is not contraindicated by any of the linguistic evidence, and seems to be supported by some of the ethnohistorical facts.

APPENDIX 1: LIST OF SYMBOLS AND ABBREVIATIONS

- Assimilation: Isg
- Borrowed form: Isi
- Back formation: Itg
- Dissimilation: Itw
- Epenthesis: Kbn
- Fused form: Kla
- Gemination: Kln
- Metathesis: Kng
- Prothesis: Knk
- Innovated form: Lpn
- Alta: PAN
- Northern Alta: PCo
- Southern Alta: PHF
- Amganad Ifugao: PSCo
- Bontok (Guinaang): PKI
- Batad Ifugao: Pmg
- Bayninan Ifugao: PNoCo
- Casiguran Dumagat (Agta): Pm
- Eastern Cagayan Dumagat: PS-CCo
- Palanan Dumagat: PS-CCo
- Umiray Dumaget: PSCo
- Gaddang: PAP
- Ibanag: Pbb
- Inibaloi: Pcc
- Ifugao: Pcc
- Ilokano: Pcc
- Ifongot: Pcc

APPENDIX 2: DATA

I. TERMS RECONSTRUCTABLE TO PROTO CORDILLERAN

1. PCo *?aga:maŋ ‘sleeping house for unmarried people’
   Ilk ?aga:maŋ ‘granary’
   Kng ?aga:maŋ ‘granary’
   Btd ?aga:maŋ ‘a sleeping house for boys and girls’
   Tuk ?aga:maŋ ‘a sleeping house for unmarieds’
   Lpn ?aga:maŋ ‘granary’
(2) PCo *ʔ:aːni ‘to harvest’ (< PHF *qâniH [Zorc 1971], PAn *a(Nn)i ‘harvest’ [Blust 1971])

Ilk ʔ:aːni ‘to harvest crops, to reap crops’
Isg ʔ:aːni ‘to harvest, to reap rice’
Gad ʔ:aːni ‘harvesting, said of rice’
Kla ʔ:aːni ‘to harvest’
Bon ʔ:aːni ‘to harvest rice or other grain-bearing plants; to gather seeds from certain weeds’
Lpn ʔ:aːni ‘to harvest; to reap’

(3) PCo *ʔaʔlu ‘pestle’ (< PHF *qaSelu [Zorc 1973])

Isg ʔallo ‘pestle for pounding rice, etc.’
Gad ʔaːlu ‘pestle’
IlkX ʔaʔlu (<M> ‘pestle’
PSCo *ʔaʔlu
Png ʔalu ‘pestle’
Ibl daʔdu ‘rice-pounding pestle’ (< *laʔlu, cf. Ifg lalu)
PCCoX *ʔaʔlu
lsi ʔeʔu ‘pestle’
Kla ʔalʔo ‘pestle’ (Limos Kalinga ʔallu)
ItgX ʔalʔu ʔlu (<F> (?aʔlu + ʔlu) ‘pestle’
PfX *laʔlu (<P> ‘pestle’ (possibly borrowing from Pre-Ibl *laʔlu)
Blw ʔalo ‘pestle’
Bon ʔaʔlu ‘pestle’
Tuk ʔaʔlu ‘pestle’
Knk ʔaʔlu ‘pestle’
Sgd ʔaʔlu ‘pestle’; also ʔaʔlu
LpnB ʔaʔlu ‘pestle’

(4) PCo *ʔaːlaʔ ‘granary’

Isg ʔaːlaʔ ‘granary’
Gad ʔaːlaʔ ‘granary’
Ibl ʔaːlaʔ ‘a house of good construction – especially spoken of that which is not for daily living (as a house separate from the kitchen for sleeping); also, in some places, of well constructed houses in the fields as granaries’
Isi eʔaʔ ‘granary’
Gad ʔaːlaʔ ‘granary; front’
Kla ʔaːlaʔ ‘rice house, granary’
Itg ʔaːlaʔ ‘granary’
Kng ʔaːlaʔ ‘rice granary’
Btd ʔaːlaʔ ‘a granary, esp. for rice; to place rice sheaves in a rice granary’
Blw ʔaːlaʔ ‘granary’
Bon ʔaːlaʔ ‘rice granary’

(5) PCo *ʔasud ‘to help one another in working’ (< PPh *ʔasud [Zorc 1973])

Ilk ʔasud ‘to help one another, pounding rice, preparing timber, etc.’
IblX ʔasud ‘to help one another thresh rice: usually by two or more standing at the mortar and pounding in alternate strokes’
TERMS FOR RICE AGRICULTURE AND TERRACE BUILDING

PNuCo *?asad ‘method of pounding in which two or more persons pound by alternating their pestle strokes’

Kng *ahud ‘pound rice with two or three pestles in one trough, each pounder acting by turns’

BtdX ?ahud <G> ‘to pound in pairs with pestle and mortar, as for two to pound rice, corn, coffee’

Bon ?asad ‘method of pounding rice, in which two persons, one on each side of the mortar, alternately strike their pestle into the mortar’

Tuk ?asad ‘method of pounding anything in which two or more persons pound by alternating their pestle strokes’

Sgd ?asad ‘to pound rice with another person, making alternative strokes’

(6) PCo *a:sug ‘to place a pot on the fire, for the purpose of cooking rice’

Isg ?atug ‘to place a pot on the fire’; annatuxa:n ‘any kind of pot or jar, in which rice is being cooked’

Isi ?asux ‘cook rice’

Itg ?asug ‘rice as food’

Bon a:sug ‘to cook rice out of doors’

(7) PCo *?emay ‘swidden rice plant; unthreshed swidden rice’ (< PPh *hemay ‘cooked rice’ [Zorc 1971] < PAn *Sem(e)y – ‘rice plant’ [Charles 1973])

Isg ?ammay ‘rice on the stalk’

Att ammay ‘rice on the stalk’

Ibg ammay ‘unhusked rice; rice plant’

BlwB ?ammay ‘good’

BonB ?ammay ‘good, tasty, specifically to children when coaxing them to eat’

(8) PCo *?eta 1. ‘raw, uncooked’, 2. ‘an unhusked kernel of rice mixed with husked or cooked rice’ (< PHF *qeCî ‘unhusked rice kernel; rice husk’ [Zorc 1971]; PHF *Hátaq ‘raw’ [Zorc 1971])

Art (ma-)ata ‘raw, uncooked’

Isg ?atta ‘an unhusked kernel of rice mixed with husked or cooked rice’

Gad ?atta ‘rice bran’

Alt (ma-)ata ‘raw, uncooked’

Png ?eta ‘raw, uncooked, or undercooked’

Isi ?ota ‘grain of unhusked rice’

Kla ?ota ‘unhusked grains in pounded rice’

Kng ?ota ‘grains of unhusked rice left after pounding’

Btd ?ota ‘grains of unhusked rice remaining after pounding’

Bon ?eta ‘grains of unhusked rice left after pounding’

Tuk ?eta ‘one grain of rice, millet, sorghum, or Job’s-tears, still unhusked after pounding’

Sgd ?eta ‘unpounded rice which remains mixed in with pounded rice’

Lpn ?eta ‘grains of unhusked rice left after pounding’

(9) PCo *?i:tig ‘a unit of harvested rice bundles’

Isg ?i:sig ‘a bundle of rice of the usual size; each consists of four batta?’

KlaB ?i:tig ‘four bundles of harvested rice’

Bon ?i:tig ‘a unit of harvested rice consisting of five bundles’
(10) PCo *?u:pu ‘a unit of harvested rice bundles’
Isg (m)u:po ‘one hundred bundles of rice’; also po:po
Gad (m)u:fu ‘to transport or carry goods’
Kng ?u:pu ‘rice bundle unit of measurement’
Bon ?u:pu ‘measurement of harvested rice, consisting of ten betek, or five hundred bundles’
Tuk ?upu ‘measurement of harvested, bundled grain (i.e. five hundred bundles of millet or rice)’

(11) PCo *?u:yun ‘a unit of harvested rice bundles’
Isg ?u:yon ‘one hundred bundles of rice’
Kla ?u:yun ‘four hundred bundles of harvested rice’
Lpn ?u:yun ‘band; anything used to bind a load of wood; five hundred sheaves’

(12) PCo *ba:yu ‘to pound with pestle and mortar for the purpose of removing husk from grain’ (< PPh *bayu, PAn *bayuH ‘pound rice’ [Zorc 1971])
Isg ba:yo ‘to pound rice’
Gad ba:yu ‘pounding of rice or corn’
Ilk ba:yu ‘to pound rice, in a mortar; to husk it’
Png ba:yu ‘to pound’
Ibl bayu ‘threshing rice or such using mortar and pestle’
Kla (mam-)ba:yu ‘pound rice’
Itg (mam-)ba:yu ‘pound rice’
Kng ba:yu ‘pound rice with a pestle’
Btd (mum-)ba:yu ‘to pound anything’
Amg ba:y(-won) ‘pound rice’
Byn (mum-)ba:yu ‘pound rice’
Blw ba:yu ‘pound rice’
Bon ba:yu ‘pound with pestle and mortar’
Tuk bayu ‘to pound anything’
Knk (men-)ba:yu ‘pound rice’
Sgd ba:yu ‘to pound rice’
Lpn ba:yu ‘pound; husk’

(13) PCo *begel ‘to press or squeeze together’ (> PNuCo *begel 1. ‘bundle’, 2. ‘a bundle of harvested grain’)
Ilk beg(-an) ‘to throng, press upon, crowd upon’
Isg bapal ‘a kind of squeezer used for extracting milk from coconut meat or honey from honeycombs’
GadX bapagad ‘tether’

(14) PCo *betek ‘bundle, as rice; the tie used to bundle things together’
Isg batta ‘strip of bamboo or bark; a band for tying reaped rice into bundles; a small bundle of rice, one fourth of an isig’
Gad batek ‘a bundle of rice’
Ilk betek ‘band, tie, string; a strip of bamboo, vine, etc. used to bind reaped rice into bundles; sapkabetek ‘one bundle of palay, in some districts, four, five, or six bundles’
Ibl betek ‘bundle, as of rice or wood’
Kla botok ‘bundle tied’
Kng botok ‘rice bundle’
Btd boto? ‘to harvest rice; material for binding rice into bundles; a bundle of rice’
Blw bi’ta? ‘harvest’, also: bata? 
Bon betek ‘anything used for binding; a measurement of bundled rice, ten ?i:tiŋ, i.e. fifty bundles’
Tuk betek ‘a large bundle of wood, rice, sweet potato leaves, etc.; the vine, bamboo, rattan, string, etc. used to tie such a bundle together’
Sgd betek ‘a number of bundles’
Lpn betek ‘bind into bundles; sheaves’

(15) PCo *biga:?u ‘winnowing basket’ (< PPh *bijawu [Charles 1973], PHF *bijau [Zorc 1971] ‘winnowing basket’ > PS-CCoX *liga:?u)
Ilk biga:?u ‘winnow, winnowing basket’

(16) PCoX *daga:mi ‘rice stubble’ (< PHF *ZaRami [Zorc 1971], PAn *ZeRami(hO) [Dyen 1951] ‘stubble’
Isg dacija:mi ‘straw of rice’
Kbn shagami ‘rice stalks left in the field after the grain has been harvested’
Kla daga:mi ‘rice stubble, straw’
Kng daga:mi ‘rice straw’
Btd daga:mi ‘rice stalks remaining in a field after harvesting rice’
Bon daga:mi ‘rice straw’

(17) PCo *dayaket ‘general term for any variety of glutinous rice, cassava, or taro’
Isg de:kat ‘a general name for several varieties of soft and oily rice’
Gad de:kat ‘cake; glutinous rice’
Ilk di:kat ‘several varieties of soft, oily rice’
Kla de:kat ‘sticky or glutinous rice’
Kng dayakot ‘general term used for any variety of sticky rice’
BtdX daya??ot <G> ‘glutinous rice’
Bon dayaket ‘general name for the various varieties of glutinous rice or cassava (dayaket)’
TukX dayyaket <G> ‘sticky manioc, rice, millet, avocado’
Lpn dayket ‘variety of dark-coloured palay, or taro with red shoots’

(18) PCo *gi:waw/gu(:)waŋ ‘to make an opening or hole through; to make a breach in’
(> PNuCo *gu(:)waŋ ‘breach in a pondfield dike’)
Ilk gi:waw ‘to make an opening or hole through; to make a breach in ’

(19) PCo *ku(:)tim ‘to remove the husk of freshly harvested grain with fingers or teeth in order to eat the grain raw’
Ilk kutim ‘to peel with teeth, in the manner of squirrels feeding on nuts’
Ibl kutim ‘to remove the hulls from the rice with the fingers and teeth in order to eat the grain raw – spoken of the manner of rats and birds or of children who fancy freshly-harvested rice’
Kng kutim ‘to rub out the grains of rice ears before or during the harvest, that is, when the grains are still soft and are edible’
BtdX gutum ‘to nibble, pinch between the teeth’
Bon *kusim 'husk grains of unripe rice between the fingers for eating raw; unripe rice picked for eating'  
Tuk *kusim 'the husk of unripe or ripe but still soft rice, Job's-tears or sorghum (but not millet) removed with the teeth or fingers'  
Lpn *kusim 'peel (young palay)'  

(20) PCo *lusug 'mortar, for pounding grain' (< PHF *lesug [Zorc 1971], PAn *lesug [Dempwolff 1938] 'mortar')  
Isg *lahog 'mortar for pounding rice, etc.'  
GadX *lutug 'trough (a long hollowed-out log used for holding feed for hogs)'  
GadX (qal)hu 'mortar for betel-chew'  
Kla lusug 'mortar'  
ItgX (?a)lto (<F> (?a?u + lusug) 'rice mortar'  
Blw luhog 'rice mortar'  
Kng luhog 'mortar, primarily used for pounding rice'  
Btd luhug 'mortar'  
Amp luhog 'mortar'  
Byn luhug 'mortar'  
Bon *lusug 'mortar, primarily used for pounding rice'  
Tuk lusug 'mortar'  
Knk lusug 'rice mortar'  
Sgd lusug 'mortar'  
Lpn lusug 'mortar'  

(21) PCo *lu:tu 'to cook; ripe' (< PHF *häuser (Zorc 1971), PAn *lu(N)[t]uh 'cook' [Dempwolff 1938])  
Isg lu:to 'ripe; cooked'  
Gad lu:to 'cooking; ripe'  
Ilk lu:tu 'to cook, in general'  
Png lu:tu 'to cook'; nilutu 'cooked rice or other food'  
Ibl dutu 'to cook, a generic term'  
PKIX *?u:tu <3? to  ?> 'cook'  
Btd lu:tu 'cook by boiling'  
Kng lu:tu 'cook by boiling, especially to cook rice'  
BlwX ?u:to <3? to  ?> 'cook'  
Bon lu:tu 'cook by boiling, especially to cook rice'  
Tuk lu:tu 'to cook something completely'  
SgdX ?u:tu <3? to  ?> 'to cook, especially to boil rice'  
Lpn lu:tu:(an) 'large pot'  

(22) PCo *pa:je 'pondfield rice plant; unthreshed pondfield rice' (< PAn *pa:je 'rice plant' [Charles 1973])  
Gad pa:y 'rice'  
IbgB palay (Tag) 'unhusked rice'  
Ilk pa:gay 'rice'  
Png pagey 'rice plant'  
Ibl pagey 'rice'; palay 'rice in the field or harvested that is still on the stalk'
TERMS FOR RICE AGRICULTURE AND TERRACE BUILDING

KIa pagoy ‘rice (unhusked)’
Itg pagoy ‘rice in sheaf’
Kng pagy ‘rice growing in the fields, or bundles of rice ears’
Btd paguy ‘a panicle of rice with its stalk’
Blw pagiy ‘rice on the stalk’
Bon pagey ‘unthreshed rice; rice plant’
Tuk pagey ‘rice plant still on the stalk’
Sgd pagey ‘unthreshed rice’
Lpn pagey ‘rice on the stalk; unhusked rice’

(23) PCo *pakpak 1. ‘to slap, to beat with a flat surfaced instrument’, 2. ‘to fasten two flat surfaces together’ (< PPh *pakpak ‘slap together; clap’ [Zorc 1971]; cf. PHF *pakpak ‘wing’ [Zorc 1971]; > PNuCo *pakpak 1. ‘to fasten two flat surfaces together’, 2. ‘to stick mud on something, as the top of a retaining wall to prevent leakage’)
Ilk pakpak ‘to slap with the open hand, the flat of a sword, etc.’
Ibl pakpak ‘to cause s.th. to adhere to s.th. else’

(24) PCo *pa:naj ‘level area, plain’ (cf. PHF pa(n)taR ‘level area’ [Zorc 1971]; > PS-CCo *pa:nad ‘level area; to level’)
Isg pa:nag ‘plain, level land’

(25) PCo *payaw ‘pondfield’
Gad payaw ‘rice field’
Ibl payew ‘rice field, paddy, spoken of that which is level and potentially can be flooded’
KIa payaw ‘rice field’
Kng payo ‘pondfield’ (payaw)
Blw payaw ‘pondfield’
Bon payew ‘pondfield’
Tuk payew ‘pondfield’
Lpn payew ‘rice field’

(26) PCo *penar ‘rice grains’ (> PNuCo *penal ‘rice seed; to sow a rice seed bed’) 
Isg pannar ‘detached grains and spikelets of rice in and around the sixay [hut built in rice fields]’

(27) PCo *pideR ‘be adjacent to’ (> PNuCo *pidel ‘that part of a pondfield which is adjacent to the base of the retaining wall that supports the pondfield above it’)
Ilk pideg ‘to push an object against another, to put in contact with’

(28) PCo *rakem ‘harvesting knife’
Ilk rakem ‘a reaper’s knife, used to cut rice below the ear’
Isg rakam ‘the reaper’s knife’
KIa lakom ‘knife used for harvesting’
Bon lakem ‘a harvesting knife’
Lpn lakem ‘a small instrument used to reap palay’

(29) PCo *ta?ep ‘to winnow; husk of grain’ (< PPh *tahep, PAn *tasép ‘winnow rice’ [Zorc 1971])
Gad ta:p ‘winnowing (of rice)’
Ilk ta?ep ‘chaff, glume, husk, hull; to winnow’
II. TERMS RECONSTRUCTABLE TO PROTO SOUTH-CENTRAL CORDILLERAN

(30) PCo *teneŋ ‘division in a field’ (> PNuCoX *batnəŋ ‘stone boundary marker in a field; mud dike in a pondfield’; possibly from *batu-n teneŋ ‘stones which are boundary markers’)
Isi tanəŋ ‘division in a field’

(31) PS-CCo *ʔugbu ‘an exchange labour working group’
IblX ʔubbu(wan) ‘cooperative work, i.e. help given to a person that is repaid in kind, as planting, harvesting, threshing’
PfX *ʔubbu <A> ‘working group’
Kng ʔubbu ‘group work; number of workers (e.g. women) who form a more or less permanent group accustomed to work together during harvest time’
Btd ʔubbu ‘a working group of two or more persons sharing the work of each member’
BonX ʔubbu <A> ‘working group of married and single men from one ward with single women from one girls’ dormitory’
Tuk ʔugbu ‘working group; exchange labour’
SgdX (ʔub-)ʔubbu <A> ‘joining into groups to do the work of each member of the group in turn’
Lpn ʔugbu ‘help, aid one another’

(32) PS-CCo *b(a,e)nəŋ ‘dike for retaining water’ (> PNuCo *banəŋ 1. ‘top section of a pondfield terrace retaining wall’, 2. ‘pondfield’)  
Ibl benəŋ ‘dam, dike for retaining water’

(33) PS-CCoX *ligaʔu ‘winnowing basket’ (< PCo *bigaʔu)
PngB bigaʔu (Ilk) ‘winnowing basket’
Ibl digaʔu <A> ‘winnowing tray’ (syn. khiyag)
KlaX ?igəʔu <*l to > ‘winnowing basket (without holes)’
Kng ligaʔu ‘winnowing basket’
Btd ligaʔu ‘winnowing basket’
Blw ligə ‘winnowing basket’
Bon ligaʔu ‘winnowing basket’; also ligʔu
Tuk ligʔu ‘winnowing basket’
Lpn ligaʔu ‘fan’

(34) PS-CCo *pa:nad ‘level area; to level’ (< PCo *pa:naj ‘level area, plain’)  
Ibl panad ‘to do the last fine bit of levelling in making a rice field or in making the place for a wall foundation’
 TERMS FOR RICE AGRICULTURE AND TERRACE BUILDING

Kla pa: nad ‘a level area’
Kng pa: nad ‘hard ground under the mud of rice field terraces’
Btd pa: nad ‘to level a ground area as for a house site, pondfield’
Bln pa: nad ‘to level for a house’
Bon pa: nad ‘hard ground under the cultivated surface of a pondfield, level base; the spirit which resides in a pondfield or a pasturing field for water buffalo’
Tuk panad ‘hard earth layer beneath mud of pondfield; any flat surface on the ground; to make such a surface, to level’
Sgd pa: nad ‘to level a field’
Lpn pa: nad ‘to level; smooth; smoothen; make even, smooth, for instance, a field’; also: pantag ‘flat, plain; to arrive in open country’; paniag ‘flat, plain’; penad(napnad) ‘plain, flat spot, open country’

(35) PS-CCo * tu: ned ‘to transplant rice seedlings’
Ibl tuned ‘to plant rice’
Btd tunod ‘plant rice seedlings’
Kng tunod ‘transplant the rice seedlings’
Bon tuned ‘plant rice seedlings’
Tuk tuned ‘to transplant rice seedlings’
Lpn tuned ‘transplant’

(36) PS-CCo * tupi: g ‘stone wall’ (> PNuCo * tupi: n 1. ‘stone retaining wall’, 2. ‘any orderly heap of objects’)
Ibl tupi: n ‘stone wall’
ItgX tupin < * n to n > ‘stone wall’

III. TERMS RECONSTRUCTABLE TO PROTO CENTRAL CORDILLERAN

(37) PCCo * a: lak ‘irrigation canal’ (cf. PPh * qaRak ‘lead’ [Zorc 1971])
Kla a: lak ‘irrigation’
Btd a: la? ‘to channel water by making an irrigation canal’
Bon a: la? ‘water race; canal’
Tuk a: lak ‘irrigation ditch’

(38) PCCo * u: lut ‘to strip grain from rice panicles by pulling them through one’s hands; straw that is left after grains have been stripped off’ (cf. PPh huRut ‘tighten, squeeze; massage’ [Zorc 1971])
Kla u: lut ‘rice stalks’
Kng u: lut ‘remove grain from rice panicles by pulling them through one’s hands’
Btd u: lut ‘to pull a rice panicle through the closed left fist, butt end first to strip off the grain’
Bon u: lut ‘remove grain from rice panicles by pulling them through one’s hands’
Tuk ulut ‘straw that is left after grains are pulled by hand’
SgdB alu: lut ‘to remove rice grains from the stem with the hands’

(39) PCCo * u: pak ‘bark of a tree, peeling’ (< PPh úpak [Zorc 1971]; > PNuCoX * u(:)pek ‘rice bran; what remains after rice has been pounded and winnowed’) KlaX upik ‘outer skin (of plant)’
(40) PCCo *bina:yu ‘pounded rice’
   Ilt bina:yu ‘pounded rice’
   Kla bina:yu ‘pounded rice’
   Itg bina:yu ‘pounded rice’
   Bon bina:yu ‘pounded rice’

(41) PCCo *dugi ‘husk of rice’
   Kla dugi ‘husk of rice; rice bran’
   Itg dugi ‘husk of rice’
   Blw dugi ‘husk of rice’
   AmgX dugi(h) <E> ‘husk of rice’
   Btd dugi ‘husk of rice’
   Byn dugi ‘husk of rice’
   SgdX digi <*u to i> ‘rice husk’; degyan ‘place for pounding rice and piling husks’

IV. TERMS RECONSTRUCTABLE TO PROTO NUCLEAR CORDILLERAN

(42) PNuCo *?a:deg ‘to fill with stones and dirt, as the space behind a stone wall as a terrace
is being constructed’
   Btd ?a:dog ‘to fill in space behind a stone wall as one builds it up’
   Bon ?a:deg ‘to be covered with debris, of a pondfield after the collapse of a higher terrace
wall’
   Sgd ?a:deg ‘to throw waste on, cover, fill, to impair with dirt, stones, etc.’

(43) PNuCo *?et?et ‘pack holes with mud’ (cf. Ilk ?et?et ‘tight; cause to become tight’)
   Kng ?ot?ot ‘fill up gaps with mud, e.g. gaps between the large stone which covers a grave,
and its borders’
   Bon ?et?et ‘inner side of the dike of a pondfield’
   Tuk ?et?et ‘to cement with mud (e.g. pondfield or irrigation ditch)’
   Lpn ?et?et ‘stop; cement (with mud, etc.)’

(44) PNuCo *?u:gas ‘a grain of unhusked rice which has fallen from a harvested rice stalk’
   Kng ?u:gah ‘rice ears with their respective thin stalks which happened to fall in the field and
on the straw when the women are busy harvesting’
   Btd ?uga:h ‘grains of unhusked rice dropped from bundles’
   Bon ?u:gas ‘one grain of unhusked rice; remnant, as the seeds dropped from rice when
harvesting or drying’
   Tuk ?ugas ‘any portion of a grain panicle which falls off during harvesting, drying or
transport; that which is separated from the rest of the group or collection (e.g. children born
after the death of older siblings)’
   Lpn ?u:gas ‘detached grains; spikes fallen off; what remains after picking up bundles of
palay from the ground’

(45) PNuCoX *?u(·)pek ‘rice bran; what remains after rice has been pounded and
winnowed’ (< PCCo *u:pak ‘bark of a tree, peeling’) 
   Kng ?upok ‘chaff of rice ears, husks of winnowed rice grains’
   Btd ?u:po? ‘rice bran’
   Bon ?upek ‘rice bran’
Tuk ?upek 'husk of rice, corn, millet, etc. of the finest (thinnest) grade'
Lpn ?upek 'husk of corn'

(46) PNuCo *baneg 1. 'top section of a pondfield terrace retaining wall', 2. 'pondfield' (< PS-CCo *beneg 'dike for retaining water')
Kla baneg 'rice paddy, rice field'
Kng baneg 'dike (mostly an earthen dike) of a rice field terrace'
Btd baneg 'the top of a retaining wall including the inside basin of the retained pondfield'
Bon baneg 'top section of the dike of a pondfield; by extension, the pondfield itself'
Tuk baneg 'top of retaining wall of pondfield, on which one can walk; bund'
Sgd baneg 'top of stone wall, serves as dike to retain water in field'
Lpn baneg 'lower side; path at the lower side (of a rice field); the opposite of the side from where the water flows'

(47) PNuCo *ba:new 'to serve cooked food'
Kng ba:no 'act of scooping what has been cooked out of the pot (ba:naw)'
Btd ba:naw 'to dish out cooked food'
Blw ba:naw 'serve cooked rice'
Bon ba:new 'serve cooked rice'
Tuk ba:new 'wood or bone spatula used for serving cooked solid foods such as mashed taro, rice, millet, etc.; not for liquids or meats'
Lpn ba:new 'slops; hogwash; dishwater'

(48) PNuCo *batneg 'stone boundary marker in a field; mud dike in a pondfield'; possibly from *batu-n teneg - 'stones which are boundary markers' (< PCo teneg 'division in a field')
Kng batneg 'low mud dike, forming a boundary within a pondfield'
Btd batneg 'to imbed something in soil as a stone in building, a wall, boundary'
BonX batneg < *e to u> 'low mud dike, forming a boundary within a pondfield'
TukX batneg < *e to u> 'temporary wall within pondfield'
Lpn batneg 'to curb; to restrain a bank of earth with stones'

(49) PNuCo *begel 1. 'bundle', 2. 'a bundle of harvested grain' (< PCo *begel 'to press or squeeze together')
Kng bogel 'bundle of three, four, or more objects of the same kind which are bound together, or simply held in one hand by their strings if they must be given to somebody'
BtdX bogel < *b to p > 'a group of three or more objects held or tied together; to group objects as described above'
Bon begel 'one bundle of harvested rice'
Tuk begel 'one bundle of grain (i.e. rice or millet) on the stalk'
Sgd begel 'a bundle of harvested rice about an inch in diameter where the stalks are tied below the head'

(50) PNuCo *dubdub 'movement of soft mud'
Kng dubdub 'act of oozing, trickling, applied to muddy or soft dikes of a rice field'
Bon dubdub 'be scoured out, as soil is scoured out by running water'
TukX kubkub 'act of scouring out soil or rock such as what a stream does to a soil bank'

(51) PNuCo *gu(:)wag 'breach in a pondfield dike' (< PCo gi:wag 'to make an opening or hole through; to make a breach in')
Kng *gu:waŋ* ‘open a breach in a pondfield dike’
Btd *gu:waŋ* ‘to open an outlet of dammed water, as in a pondfield’
Bon *guwaŋ* ‘open a breach in a pondfield dike’
Tuk *guwaŋ* ‘to open a passageway for water to flow in through a dike, irrigation canal or *batnay* 
Lpn *guan* ‘breach; gap; open a ditch’

(52) PNuCo *la(:)siŋ* ‘a branch of a rice panicle’
Kng *laheiŋ* ‘rice ear including the twig supporting it’
Btd *laheŋ* ‘a branch of a rice panicle’
Bon *la:siŋ* ‘branch of a panicle of rice’
TukX *lusip* ‘a branch of a panicle of rice or sorghum’
Lpn *la:siŋ* ‘branch of a panicle of rice; *carabao*, in tales’

(53) PNuCo *lewet* ‘dig deeply’
Kng *loweŋ* ‘small pit or depth in the ground’
Bon *lewet* ‘cultivate deeply in a pondfield’

(54) PNuCo *li(:)s8iŋ* ‘clods of dried mud or dirt’
Kng *li:haŋ* ‘outermost part of a bunch or a heap of mud in a rice field’
Btd *li:haŋ* ‘to break up chunks of dried mud in a pondfield’
Bon *lis8iŋ* ‘dig into a bank of dirt, as to extend the width of a levelled area’
Tuk *lis8iŋ* ‘a unit or quantity of soil turned by a *tañlay*, shovel or spade before or without being broken up (e.g. in pondfield, swidden, river bank or elsewhere)’
Lpn *lis8iŋ* ‘that which is frequently said of these venerated things’

(55) PNuCo *padug* ‘rice seedling’
Blw *pa-lachug* ‘rice seedlings’
Bon *padug* ‘to sow rice seed; rice seedlings’
Lpn *padug* ‘seedling of palay, to be transplanted or recently transplanted’

(56) PNuCo *pakpak* 1. ‘to fasten two flat surfaces together’, 2. ‘to stick mud on something, as the top of a retaining wall to prevent leakage’ (<PCo *pakpak* 1. ‘to slap, to beat with a flat surfaced instrument’, 2. ‘to fasten two flat surfaces together’)
Btd *pa?p?a?* ‘to fasten one of the large surfaces of an object to that of another; to stick mud on something’
Blw *pa?p?a?* ‘touch, as of sugar, and then touch something else, leaving some’
BlwB *pakpak* ‘beat with an instrument’
Bon *pakpak* ‘to fasten together, of two flat surfaces; to stick mud onto a terrace wall to prevent leakage; to remake a path on a terrace wall by packing it with mud’
Tuk *pakpak* ‘mud plastered to top of retaining wall of pondfield; to tap, pat, or hit lightly’
Lpn *(na-)pakpak(-an)* ‘dirty all over, muddied up to the eyes’

(57) PNuCo *pądew* ‘stepping stones built into the wall of a pondfield’
Kng *pando* ‘stones of retaining stone walls which jut out, are longer than the other ones, and serve as footholds from one terrace to another’
Btd *pândaw* ‘a stepping stone jutting from a stone wall’
Bon *pądew* ‘rock built into the wall of a terrace as a stepping stone’
(58) PNuCo *pegnad ‘foundation’
Bon pegnad ‘the base of a terrace wall’
Lpn pegnad ‘foundation, groundwork, basis’

(59) PNuCo *penal ‘rice seed; to sow a rice seed bed’ (<PCo *penar ‘rice grains’)
Kla (mam-)*enal ‘to plant rice; to make a seed bed’
BonX panal <*>e a> ‘rice seed; to sow a rice seed bed’

(60) PNuCo *pidel ‘that part of a pondfield which is adjacent to the base of the retaining wall that supports the pondfield above it’ (<PCo *pideR ‘be adjacent to’)
Kng pidol ‘place close to a retaining stone wall of a rice field terrace’
Btd pedol ‘the edge of a pondfield bounded by a retaining wall above it’
Bon pidel ‘part of a terrace, or field, adjacent to the wall supporting the terrace above it’
TukX piddel <G> ‘that part of the pondfield adjacent to wall or slope behind or above it’

(61) PNuCo *samal ‘preparation of a pondfield prior to transplanting rice seedlings’
Amg h(-in-)amal ‘cooked rice’
Btd h(-in-)amal ‘cooked rice’
Byn h(-in-)amal ‘cooked rice’
Bon samal ‘to till pondfields prior to transplanting; the season when pondfields are tilled’
Lpn sama ‘to sow; to plant; to make the rice field ready; preparation of the rice field before transplantation’

(62) PNuCo *seldaI ‘stage of rice development when seed heads have appeared and are beginning to ripen’
Kng holdaI ‘term used when the rice in the fields ripens producing ears’
Btd holdaI ‘to begin to ripen, of growing rice’
Bon seldaI ‘stage of rice development when it is ready for harvest’
Tuk seldaI ‘stage of development for grains, beans, etc., at which leaves turn brown indicating readiness to be harvested’
Lpn se:daI ‘begin to ripen, of rice’

(63) PNuCo *ta:ban ‘the cleared ground bordering a pondfield, either the mountain slope above or adjacent to it, or the area below its retaining wall’
Kng ta:ban ‘strip of sloping ground beneath a retaining stone wall which should not be delved off’
Btd taban ‘a narrow strip of levelled ground immediately above or below a retaining wall’
Bon taban ‘cleaned space above a pondfield’
Tuk taban ‘cleared area above, below or adjacent to a pondfield’
Lpn ta:ban ‘ground bordering a rice field, whence its water flows; for instance, the mountain slope, etc.’

(64) PNuCo *teleb ‘to pour off excess water from cooking rice’
Kng tolob ‘pour some water out of the cooking pot, because the one who was boiling rice sees that too much water had been poured in the pot’
Btd teleb ‘to remove excess water from cooking food’
Bon teleb ‘pour off excess water from cooking rice’
Tuk teleb ‘to pour off excess water when cooking any food which absorbs water during the cooking process (i.e. grains, but not sweet potato, taro, beans, or meat)’
Lpn teb ‘to remove, pour off the water; applied to cooking rice and tapey, respectively’
(65) PNuCo *tupiŋ 1. 'stone retaining wall', 2. 'any orderly heap of objects' (< PCo *tupiŋ 'stone wall')
Kng tupiŋ 'retaining stone wall, built in a rice field system; not a double stone wall which does not serve to retain earth'
BtdX tapeŋ '<*u to a> a stone retaining wall'
Byn topeŋ 'stonewalled embankment'
Bon tupiŋ 'a stone wall, particularly a terrace wall; to pile one on top of another, as pigs during a mass sacrifice'
Tuk tupiŋ 'a neatly made stone wall in a pondfield, around a house, in a pig pen, etc.; neatly made pile of anything that resembles a stone wall'
Lpn tupiŋ 'stone wall'
CENTRAL PAPUAN CULTURE HISTORY: SOME LEXICAL EVIDENCE

M.D. ROSS

1. INTRODUCTION

This paper is somewhat different in its intent from others in this volume. Whereas most of the papers are largely concerned with reconstructing a specific terminology in one or more interstages, the present paper uses diverse reconstructed etyma to piece together the prehistory of a relatively small group of Austronesian speakers. These are speakers of the thirteen Central Papuan (CP) languages, which lie scattered along or close to the south-west coast of the Papuan mainland (see Map 1).

The CP languages form a closed subgroup of Oceanic Austronesian languages, descended from a common ancestor, Proto Central Papuan (PCP). This subgroup forms part of the Papuan Tip (PT) cluster, with about fifty member languages, whose common ancestor was Proto Papuan Tip (PPT). For convenience’s sake, member languages of the PT cluster which do not belong to the CP subgroup are referred to here simply as ‘non-CP languages’. The non-CP languages are situated on the coasts and archipelagos of south-east Papua (see Map 2 and Ross 1988:195).

The CP and PT groupings have been the subject of a number of pieces of work, including Chapter 6 of Ross (1988), which also provides an overview of earlier studies. The genetic unity of both groups is well established (CP by Pawley 1975b and Lynch 1983b, PT by Ross 1988). Some elaboration of the relationships among some non-CP languages is given by Ross (1992), but this is only peripherally relevant to the subject of the present paper. Figure 1 gives an approximate genetic tree showing relationships among CP languages. It provides more detail than the corresponding figure in Ross (1988:192), and the subgrouping decisions will be briefly justified below. The conventions used in Figure 1 are those outlined

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1 This is an almost completely rewritten version of the paper presented at the Symposium. This version has benefited greatly from the work of the Oceanic Lexicon Project at the Australian National University. The aim of the project is to produce a dictionary of Proto Oceanic reconstructions, organised by terminologies. The Project is partly financed by a grant from the Research School of Pacific Studies, Australian National University.

I would like to express my thanks to Meredith Osmond, the Project’s research assistant, for her assistance, and to Nigel Oram, who provided extensive data on fish terms in Motu and Hula and on various other matters. I am also grateful to Bruce Biggs, Ross Clark, Paul Geraghty and Bob Langdon for their comments on the first version of this paper and to Tom Dutton and Andrew Pawley for comments on successive versions. Needless to say, whatever errors remain are my responsibility.

2 The figure of thirteen presupposes that Mekeo, Sinagoro and Keapara are each treated as a single language. There are perhaps grounds for treating Mekeo as more than one language, as indicated in Figure 1 (Alan Jones, pers. comm.).
Proto Papuan Tip

Papuan Tip network

North Mainland/ D'Entrecasteaux network

Proto Suauic

Proto Central Papuan

Kilivila/Louisiades network

Are/Taupota network

Proto West Central Papuan

West Central Papuan network

Gabadi/Nuclear West Central Papuan network

Nuclear West Central Papuan network

Roro/Kuni/Mekeo network

Mekeo network

East Mekeo
('Central' Mekeo)

West Mekeo (Bush Mekeo, Tati)

North Mekeo (Amoamo)

North-West Mekeo (Kovio)

Kuni

Roro

Lala

Doura
(Nara, 'Ala'al'a)

numerous
dialects
inc.
Balawaia
Taboro
Saroa

various
dialects
inc.
Hula
Maopa
Aroma

Sinagoro/Keapara network

Sinagoro network

Keapara network

Ouma
Magori
Yoba
Bina

Proto Sinagoro/Keapara

Proto Ouma/Magori

Gabadi

Motu

FIGURE 1: THE AUSTRONESIAN LANGUAGES OF CENTRAL PAPUA: APPROXIMATE GENETIC TREE
MAP 1: OCEANIC LANGUAGES OF THE CENTRAL PAPUAN AND ORO COASTS

by Ross (1988:9-10), where a double broken line is used to represent a dialect network or chain.

Since the CP languages form a subgroup within the PT group it follows that at some stage in the past speakers of a PT communalect which I will call pre-PCP moved from the heartland of the PT cluster in south-eastern Papua westwards along the south and south-west coast. There they were sufficiently isolated geographically and socially from the rest of the cluster – and for a time remained close enough to each other – for their communalect to undergo the innovations reconstructable for PCP. After these innovations had occurred, PCP speakers occupied larger portions of the south and south-west coast, resulting in today’s CP languages, which form three groups, as shown in Figure 1. We can conveniently conclude the story with a quotation from Ross (1988:195) which talks about the archaeological record:

There is general agreement (i) that people who were probably AN [Austronesian]-speakers have been in Central Papua since sometime around 100 B.C. (Vanderwal 1973; Bulmer 1982; Allen 1977a, 1977c) and (ii) that rapid cultural change occurred sometime around 1000 A.D. both in the area occupied today by the Are chain (Collingwood Bay) (Allen 1977c:396-397) and along the coast inhabited today by speakers of Central Papuan languages. With regard to the latter, however, there is disagreement as to the extent to which cultural change resulted from the arrival of a new group of AN-speaking settlers from the east. From Vanderwal’s (1973), Allen’s (1977a) and Bulmer’s (1979) accounts, a linguist might infer that speakers of present-day Central Papuan languages are
descended from the new arrivals. From Swadling's (1980a, 1980b) account he would infer linguistic continuity despite the arrival of intruders, whilst Bellwood (1978:269-270) argues that there was no intrusion of population but cultural innovation spreading from what is now the Milne Bay Province. The linguistic evidence suggests continuity, since (i) the Central Papuan languages have a lengthy history separate from those of the Milne Bay Province; and (ii) there is no substantial evidence of two different Oceanic sources in Central Papuan languages.

The research reported in this paper had two aims. One was to subject to close scrutiny the latter claim – that Central Papuan languages offer no substantial evidence of two separate Oceanic inputs. The other was to look into the hypothesis that early in the prehistory of the CP languages there was a hiatus in the sea-going activities of their speakers. Speakers of most of today's non-CP languages have a largely sea-based economy, as do speakers of the CP languages Keapara, Motu and Roro and some Sinagoro, Gabadi and Lala villages. Other things being equal, one would infer that these CP communities have had a continuous association with the sea, and would therefore expect their lexicons, and the reconstructed lexicon of PCP, to retain PPT etyma associated with the sea. Cursory inspection revealed that some CP items connected with the sea were not the expected reflexes of Proto Oceanic (POC) etyma, prompting the thought that, contrary to expectation, the speakers of PCP may have had a predominantly land-based economy (like much of today's Sinagoro-speaking area and the areas occupied by Gabadi, Kuni and Mekeo) rather than the expected maritime economy.

Both research aims entailed an investigation of loan words. If there was an intrusion of non-CP speakers in the CP-speaking area sometime after its initial settlement, then we would expect to find non-CP loans in CP languages. And if there was a hiatus in the maritime economy of CP speakers, then we would expect some directly inherited lexical items associated with sea-based activity to have been replaced by loans. Hence tracing loan words and their histories forms a major part of this paper. The data base used for it consists of cognate sets whose referents are either related to maritime life or to life on land, in order to trace what has happened to vocabulary associated with these two domains.

The first finding of this investigation is that, whilst many of the cognate sets presented in this paper indicate linguistic continuity, that is, direct inheritance from PPT, a smaller number appear to be loans from non-CP languages, at least some of which are consistent with a Collingwood Bay source. For such loans to have occurred, it would seem probable that some of the newcomers settled amongst CP speakers, an inference which supports Swadling's interpretation of CP prehistory.

The second finding is that the hypothesis of a hiatus in PCP sea-going activities is not supported. There are a number of directly inherited items associated with marine activity (listed in section 4.2), particularly the names of fish species, which indicate continuity. It is true that PCP items associated with the sea are sometimes not the expected reflexes of POC etyma, but these cases are either a result of the borrowing from non-CP languages referred to above, or, in all probability, of borrowing from non-Austronesian languages. Speakers of CP languages have long been in contact with non-Austronesian-speaking neighbours, a fact which has probably affected all thirteen languages, and which, as Dutton (1982) has demonstrated, has had radical effects on the four easternmost CP languages, Ouma, Magori, Yoba and Bina – so radical that these languages have not only undergone substantial lexical
replacement but are in process of being completely replaced by non-Austronesian languages. Interestingly, however, acquisition of non-Austronesian vocabulary is not a necessary result of close contact with non-Austronesian speakers. The Motu live in a symbiotic socioeconomic relationship with the non-Austronesian Koita (Allen 1977b), but Dutton’s (1994) research indicates that lexical borrowing has been largely from Motu into Koita, and consists in the main of cultural items. I have made no attempt here to investigate non-Austronesian loans in CP languages, because relevant data from non-Austronesian languages are not available.

The remainder of this section is devoted to various presuppositions and conventions. Section 2 sketches portions of PT phonological history as a framework for identifying loans and understanding their history. Section 3 presents non-CP loans found in CP languages, and deals with their identification, sourcing, and the CP interstage at which they were acquired. Section 4 draws together various threads to make some inferences about CP culture history, and lists directly inherited PCP etyma in domains associated with maritime and terrestrial activities.

The overall Austronesian subgrouping assumed here is Blust’s (given in Blust 1987a), but in practice the only protolanguage of a higher order than POC that I refer to is Proto Malayo-Polynesian (PMP). Within Oceanic I assume a minimum of three primary subgroups: Western Oceanic, Admiralty Islands (ADM), and Eastern Oceanic. Western Oceanic and Admiralty Islands are reasonably well founded, and have been defined by Ross (1988). The St Matthias group, a possible tiny primary subgroup, is here included with

It is generally accepted that the ancestors of at least some speakers of Mailu, a non-Austronesian language close to Magori, were Austronesian speakers.
Admiralty Islands. Eastern Oceanic includes all other Oceanic languages. These do not meet normal subgrouping criteria (i.e. no shared innovations define the whole group), but treating them as a subgroup ensures a rigorous criterion for recognising a reconstruction as POC: it must have reflexes in at least two of the three primary subgroups.

The Western Oceanic subgroup consists of the PT, North New Guinea and Meso-Melanesian clusters. It is possible that the PT and North New Guinea clusters form a super-cluster, New Guinea Oceanic, and so etyma which occur only in PT and North New Guinea languages are attributed to a putative Proto New Guinea Oceanic (PNGO), and etyma found in either PT or North New Guinea (or both) and in Meso-Melanesian are labelled Proto Western Oceanic (PWO).

Eastern Oceanic includes South-East Solomonic (SES), North/Central Vanuatu (NCV), South Vanuatu, New Caledonia, Nuclear Micronesian (MIC), and Central Pacific (divided for convenience into Fijian (FIJ) and Polynesian (PN)).

I have attempted to present PCP reconstructions and supporting cognate sets in a way which is easy to read and which takes up no more space than the evidence requires. In principle, each cognate set is headed by a POC reconstruction, followed in parentheses by its earliest source. Sometimes the reconstruction is attributed to a lower-order protolanguage, either PNGO, PPT, or Proto Peripheral Papuan Tip. The Peripheral Papuan Tip group is a grouping within the PT cluster which includes the CP subgroup (see below). Where the POC reconstruction is new or controversial I have either included supporting data from languages outside the PT cluster or occasionally given a PMP reconstruction supported by non-Oceanic cognates.

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4 Sources of data for this study are:
(1) those listed in Appendices A and B of Ross (1988);
(2) computer files of North/Central Vanuatu data compiled by Ross Clark, and of Polynesian (POLLEX) data compiled by Bruce Biggs and others (both at the University of Auckland);
(3) computer files of dictionaries in progress provided by members of the Summer Institute of Linguistics. Languages and those who compiled/supplied the dictionary are as follows: Biilau (Doug Bennett), Buang (Bruce Hooley), Bwaidoga [Iduna] (Joyce Huckett), Dami (George Elliott), Ramuaaina [= Duke of York] (Lisbeth Fritzell and Robyn Davies), Gapapaiwa (Ed and Catherine McGuckin), Gumawana (Clif Olson), Hote (Marguerite Muzzey), East Kara (Perry and Virginia Schlie), Kaulong (Craig Throop), Leveli-Drehet [= Khehek] (Stephan Beard), Lewo (Robert Early), Lou (Robert and Verna Stutzman), Manam (Stephen and Kim Blewett), Mangseng (Lloyd Milligan), Mangap-Mbula (Robert and Salme Bugenhagen), Mengen (Fred Madden), Misima (Bill Callister), Mumeng [Patap] (Linda Vissering and Karen Wilson), Nakunai (Ray Johnston), Nehan (John Glennon), Patapar (Ed Condra), Lukep [= Pono] (Jeff and Sissie D’Jernes), Siar (Larry Erdman), Sissano [Arop] (Stephen Whitacre), Sudest (Mike Anderson), Sursurunga (Don Hutchisson), Takia (Salme Bugenhagen, Judy Rehberg, Curtis Thomas), Tawala (Bryan Ezard), Teop (David Snyder), Tinputz (Roman Hostetter), Titan (Keith Lusk);
(4) computer files of dictionaries in progress provided by Debbie Hill (for Longgu) and myself (for Takia);
(5) other dictionary/vocabulary sources: Bauan Fijian (Capell 1941), Irarutu (Grimes and Matsumura 1990), Loniu (Hamel 1994), Lou (Blust, forthcoming a), Maringe (Cheke Holo) (White 1988), Mekeo (dialects other than East: Alan Jones, pers.comm.), Motu (Nigel Oram, pers.comm.), Tolo (Crowley 1986), Wayan Fijian (Pawley and Sayaba, forthcoming).

5 This is sometimes a difficult exercise, as earlier reconstructions may differ in form and meaning from each other and from mine, and the decision as to whether a particular reconstruction is ‘new’ is sometimes rather subjective. I have taken higher-order (e.g. PMP) reconstructions for which there is also supporting Oceanic data to be the ‘source’ of a reconstruction. It is in this sense that Dempwolff (1938) appears as the source of POC reconstructions.
Since data are drawn from a wide range of languages, an abbreviation to the left of each datum indicates the subgroup of Oceanic to which the language belongs. In general, the closer a language is genetically to the PT cluster, the more fine-grained the subgrouping adopted. For Admiralty Islands and Eastern Oceanic languages I have used subgroups mentioned above.

Within the Meso-Melanesian and North New Guinea clusters I have used groupings defined in Ross (1988). Within the Meso-Melanesian cluster I distinguish Bali-Vitu (BV), Willaumez (WLZ), North-West Solomonic (NWS), and New Ireland (NI, excluding the NWS subgroup thereof).

Within the North New Guinea cluster I distinguish Bel, Schouten (SCH), South-West New Britain (SWNB), Mengen (MGN), Vitiaz (VTZ), Vitiaz Strait languages not included under Bel, SCH, SWNB or MGN), Ngero (NGO), Markham (MKM), and Huon Gulf (HG, excluding the MKM languages).

The internal structure of the PT cluster is described by Ross (1992):

1) Nuclear Papuan Tip network
   a) North Mainland/D’Entrecasteaux network\(^6\) (NMDX)
      i) Gumawana language (GUM)
      ii) Dobu/Duau chain (DD)
      iii) Bwaidoka/Molima network (BM)
      iv) Are/Taupota chain (AT)
      v) Kakabai chain (KAK)\(^7\)
   b) Suauic linkage (SUA)

2) Peripheral Papuan Tip network
   a) Kilivila/Louisiades network (KL)
      i) Kilivila family
      ii) Misima language
      iii) Louisiades languages (Nimoa and Sudest)
   b) Central Papuan family (see also Figure 1 and the discussion below)
      i) Ouma/Magori subfamily (OM)
      ii) Sinagoro/Keapara network (SK)
      iii) West Central Papuan network (WCP, where not included within NWCP)
         A) Motu language
         B) Gabadi language
         C) Nuclear West Central Papuan network (NWCP)
            - Lala language
            - Doura language
            - Roro/Kuni/Mekeo network (RKM)

\(^6\) Ross (1988) classes Gumawana (=Gumasi) in the Kilivila/Louisiades network, but amends this in a last-minute footnote. Ross (1992) shows that it is a member of the NMDX network. In the classification given in Ross (1992), separate Bwaidoka, Molima, Are and Taupota groups are distinguished. I have lumped the first two together here as the Bwaidoka/Molima network and the latter two as the Are/Taupota chain, because the four small groups are distinguished only by morphological innovations. Phonological innovations – our concern here – only provide criteria for distinguishing the larger groups.

\(^7\) More data are needed before the membership of the Kakabai chain (Kakabai and Dawawa) in the NMDX linkage can be confirmed.
I have adopted the convention of providing no gloss beside items in a cognate set, where their gloss is identical to that of the reconstruction at the head of the set.

Bracketing conventions in protoforms are:

- \((x)\) it cannot be determined whether \(x\) was present;
- \((x,y)\) either \(x\) or \(y\) was present;
- \([x]\) the item is reconstructable in two forms, one with and one without \(x\);
- \([x,y]\) the item is reconstructable in two forms, one with \(x\) and one with \(y\).

All data are cited in a standard orthography (see Ross 1988:3-4) in order to facilitate comparison. Non-cognate portions of reflexes, other than grammatical morphemes, are shown in parentheses (…). The two parts of a reduplication are separated by a hyphen. A final hyphen indicates an inalienably possessed noun which obligatorily takes possessor pronominal suffixes. For a complete list of abbreviations see Appendix 1.

2. PHONOLOGICAL HISTORY

Consonant correspondences for all CP and most non-CP languages are set out in Appendix A. The reconstructed phonologies and orthographies for POC, PPT and PCP used here are those outlined by Ross (1988), with the addition of *p\(\text{w}\) to the POC phoneme inventory.8

The phonological history of the PT cluster is discussed by Ross (1988:196-208). For convenience’s sake, the shared phonological innovations of the Papuan Tip cluster are repeated below:

A. POC *\(r\) and *R merged as PPT *\(r\).
B. POC *d and *\(dr\) merged as PPT *\(d\).
C. POC *\(p\) split into (fortis) PPT *\(p\) and (lenis) PPT *\(v\), with all languages agreeing on their reflex of POC *\(p\) in a given item. PPT *\(v\) occurs far more often than PPT *\(p\).
D. POC *\(k\) split into (fortis) PPT *\(k\) and (lenis) PPT *\(q\), with all languages agreeing on their reflex of POC *\(k\) in a given item. PPT *\(q\) occurs far more often than PPT *\(k\).
E. POC *\(q\) merged with the lenis reflex of POC *\(k\) as PPT *\(q\).
F. POC *\(n\) merged with POC *\(n\) in all items except POC *\(namuk\) ‘mosquito’.

The internal relationships of groups within the PT cluster were tabulated above. It would be misleading, however, to interpret the tabulation above as a conventional genetic tree. As I have written elsewhere (1988:211):

PPT speakers evidently spread through the islands of the D’Entrecasteaux and Louisiades archipelagos and established themselves on the nearby mainland coastal strip, resulting in its gradual differentiation into a dialect linkage. Contact at certain points in the linkage weakened…resulting in the division of the Papuan Tip linkage into the Nuclear and Peripheral Papuan Tip linkages. However, neither the Nuclear nor the Peripheral Papuan Tip languages are characterised by a set of shared innovations. Instead, each linkage is chained together by a series

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8 The reconstruction of POC *\(p\text{w}\) has been necessitated by recent work on the lexicon of POC (Ross, forthcoming); it is not unexpected, as it fills an empty slot in the previously reconstructed inventory.
of intersecting isoglosses...but there is a distinct gap between the two linkages in the chains of isoglosses.

Many of the details of the interrelationships of non-CP languages are irrelevant to this paper, and only relevant matters are summarised here (for further information, see Ross 1992). Of particular importance in determining the approximate sources of non-CP loans in CP languages are the canonic forms of non-CP reflexes of POC etyma with final consonants. PPT retained final consonants, and in general Nuclear PT languages also retain them. NMDX languages add -a after the final consonant, Suauic languages -i. For example:

POC *qatop 'sago thatch'
PPT *qatov
Pre-NMDX *qatov-a

AT: Are katoba 'mat of plaited coconut leaf'

DD: Dobu atoa

Pre-Suauic *qatof-i

SUA: 'Auhelawa atovi, Suau hatofi

Similarly, reflexes of POC *patar 'raised platform, platform over outrigger' /PPT *patar occur in NMDX languages with -a (Gumawana pataJa 'fleet of canoes', Dobu pata-patala 'outrigger boom') but in Suauic dialects with -i (Dai patapatali 'outrigger float'). Similarly with PPT *daumwar 'calm': Wedau daumora, Tawala dumola, but Dau daimoli, Tubetube daumwali.

Of Peripheral PT languages, the Pre-Kilivila and Misima retain coronal final consonants, but lose the rest, whilst the Lousiades and CP languages lose all final consonants.

The NMDX languages are also characterised by two sound changes. Firstly, POC/PPT *l becomes n in all of them (but is lost sporadically before *i in some of them). Secondly, the fortis reflex of POC/PPT *s is variously g, y, r, y or zero, reflecting a sound change POC/PPT *s > NMDX *r or *y.9

Within the NMDX network, the Are/Taupota languages are set apart by the fact that they undergo devoicing of the PPT voiced stops *b, *d, and *g (Ross 1992:160-161).

Within the Are/Taupota chain, the Taupota languages differ from the Are in their reflexes of POC/PPT *p. In Taupota languages, *p is reflected as g, y or y (outcomes, I take it, of a sound change *p > y), whereas in Are languages it has become n.

The non-CP languages have remained in complex but changing patterns of contact with each other (cf. Allen 1977c:396-397), so that there has been extensive borrowing – to the degree that we can speak of ‘indirect inheritance’ in Biggs’ (1965) sense (indirectly inherited correspondences are shown in parentheses in Appendix A). This fact means that it is difficult to reconstruct much of the detail of non-CP linguistic prehistory or to state precisely the sources of non-CP loans in CP languages.

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9 It is unclear exactly what the change was. The sequence *s > *z > r is of course cross-linguistically common, but it is doubtful that this occurred here, since (i) it requires us to posit a further sequence of changes *r > y > g, y, θ, the first step of which entails an unusual shift from a coronal to a dorsal continuant; (ii) we might expect the reflexes of PPT *s and *r to merge, but they do so only in Arifama; (iii) this sequence *s > *z > r is lenitive, whereas g, y, r, y and zero are fortis reflexes of *s (Ross 1988, Chapter 3, especially pp. 83-93). This leaves us with the change *s > y, which is to my knowledge cross-linguistically otherwise unattested.
The phonological innovations of PCP relative to PPT are as follows:

1. (i) POC/PPT *u becomes PCP *i after POC/PPT *-ol-, *-ul-, *-al-;
   (ii) POC/PPT */i is lost before POC/PPT */i and */u [this environment is fed by (i)];
   (iii) POC/PPT */i and */y merge as PCP */y before POC/PPT */a, */o.

2. POC/PPT */s becomes a stop or a flap in CP languages (PCP */r).

3. POC/PPT word-final consonants are lost in absolute final position.

This list of innovations is much reduced in comparison with the list given by Pawley (1975b), because it excludes innovations which had already occurred in PPT. Innovations 1(i) and (ii) are in fact not exclusive to the CP languages, but are included here because they occur without exception in CP languages but only sporadically in certain non-CP languages (Ross 1992). The list also excludes the alleged loss of POC */k and */q (PPT */q), since Lynch (1983b) shows that they were retained as PCP */y. Innovation 1, actually a sequence of innovations, is Lynch’s revision of Pawley’s innovations (b), (c) and (g).10 Part of innovation 1 (i), namely its operation in the environment *-a1-, has received no previous mention in the literature. It is illustrated by POC */walu ‘Spanish mackerel, Scomberomorus spp.’, PCP */vai (see section 4.2.1). Innovation 1 (iii) has not been presented in a published work before. It is supported by the following cognate sets (CP data are from Lynch 1983b):

POC */lako ‘go’ (Dempwolff 1929)

<table>
<thead>
<tr>
<th></th>
<th>GUM:</th>
<th>AT:</th>
<th>BM:</th>
<th>DD:</th>
<th>SUA:</th>
<th>KL:</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC</td>
<td>Gumawana na</td>
<td>Arifama na</td>
<td>Bwaidoka nau</td>
<td>Dobu nao</td>
<td>Dau i lau</td>
<td>Kilivila la, Nimoa lo</td>
</tr>
<tr>
<td>PPT</td>
<td>*lako</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PCP */yayo

<table>
<thead>
<tr>
<th></th>
<th>OM:</th>
<th>SK:</th>
<th>WCP:</th>
<th>NWCP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC</td>
<td>Magori eao, Yoba yau, Bina yao</td>
<td>Saroa yayo, Maopa δao</td>
<td>Motu lao</td>
<td>Roro ao, Mekeo lao</td>
</tr>
<tr>
<td>ATC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

POC */(y)aqin ‘wind’ (Dempwolff 1938)

<table>
<thead>
<tr>
<th></th>
<th>VTZ:</th>
<th>Bel:</th>
<th>NI:</th>
<th>MIC:</th>
<th>FIU:</th>
<th>PN:</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC</td>
<td>Mbula yen ‘rain’</td>
<td>Biliau yag</td>
<td>Konomala yanin</td>
<td>Kiribati an</td>
<td>E. Fijian ḳan</td>
<td>Tongan anq, Samoan anq ‘(wind, breeze) blow’</td>
</tr>
<tr>
<td>ATC</td>
<td></td>
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</tbody>
</table>

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10 Lynch actually generalises the environment in innovation 1 (i) to a POC back vowel (*/o or */u) + */i or */y. However, as he points out, there are no known CP cases of POC */-oy-, and only one case of POC */-uy-. The latter is POC */ruyug ‘dugong’, and it proves on further investigation that the change POC */u > */i had already occurred in this item in PPT (POC */ruyug > PPT */riug > Iduna lui, Yamalele luiga, Misima yui, PCP */ri > Motu rui, Keapara lui). It must therefore be discounted as a PCP innovation.
PPT *yaqin
AT: Minavegha yagina, Wedau yajina
KL: Kilivila yagila

PCP *yaqi
SK: Balawaia ayi, Maopa dayi
WCP: Motu lai, Gabadi ai
NWCP: Lala iani, Roro rani

POC *yago ‘yellow’ (Grace 1969)

PPT *yaŋo
AT: Gapapaiwa yano-yano
BM: Iduna yao-yao

PCP *yago-
WCP: Motu lao(bana), Gabadi ao(bauba)
NWCP: Lala lao(bana), Kuni yao(fana), Mekeo lao(faga)

POC *pitolo ‘hungry’ (Grace 1969)

PPT *vitolo
AT: Doga bitona

PCP *vitoyo
SK: Saroa vito, Hula vio
WCP: Motu hitolo, Gabadi oro(a)
NWCP: Lala vikolo

POC *puqaya ‘crocodile’ (Dempwolff 1938)

PPT *vuqaya
AT: Arifama uai
DD: Dobu uaya

PCP *vuyaya
OM: Ouma uaya, Magori uae
SK: Balawaia yuua, Hula vuyaa, Maopa vuara
WCP: Motu huyla, Gabadi uaa
NWCP: Lala vuula, Roro buaea, Kuni buaya, Mekeo uala

My revised subgrouping of the CP languages continues work presented by Dutton (1970), Pawley (1975b), Lynch (1983b), and Ross (1983, 1988). The phonological criteria for the Ouma/Magori subfamily are rather weak in two respects. Firstly, because these languages are moribund and have lost much of their inherited vocabulary, the data for sound correspondences are limited. Secondly, in so far as one can reconstruct their phonological history, they seem quite conservative. Magori, Yoba and Bina have very similar phonological histories, and share the rather unusual backing of PCP *r (from POC/PPT *s) to Magori k, Yoba and Bina ?. However, precisely because the Austronesian lexicon of these languages is impoverished, they are less important to the concerns of this paper.
FIGURE 2: MAJOR SOUND CHANGES IN WEST CENTRAL PAPUAN LANGUAGES
The Sinagoro/Keapara network is also phonologically conservative, but there is little doubt about its unity as a network of closely related dialects (Dutton 1970, Lynch 1983b). The only important sound change common to the whole network is the merger of PCP *y and *ŋ as Proto SK *y. Within the network, the Keapara dialects are characterised by their treatment of stops: PCP *t is lost, whilst voiced stops are devoiced.

In Figure 1, Motu is included in the West Central Papuan network. There is limited morphosyntactic evidence for this decision (Ross 1983), but no phonological evidence.

As Lynch (1983b) has shown, the internal subgrouping of the rest of the WCP network is best approached through rule ordering. My conclusions differ somewhat from his, and the most significant phonological rules used in arriving at the internal structure of the WCP network are set out in Figure 2. These rules are based on the sound correspondences of Appendix A. Note that within the boxes which show the rules applying between two interstages, rules are quite often ordered, as indicated by parenthesised figures to the right of rules (the rules in the sets A1, A2 and B1, B2 are ordered within their set, but the sets are not ordered with regard to each other). Their most intriguing feature is that they tend to form recursive drag-chains. The longest of these sequences is:

- PCP *t > NWCP *k
- PCP *d > NWCP *t
- PCP *r > NWCP *d
- NWCP *k- > Pre-Mekeo *0-
- NWCP *t, -k- > Pre-Mekeo *k
- Pre-Mekeo *k > East Mekeo ?
- RKM *g > Mekeo k

Here recursive backing occurs: after a slot in the stop paradigm is vacated, it is filled by a further sound change.

There are several cases where the same change occurs in more than one language, but considerations of rule ordering show that we are dealing with parallel changes, not with shared inheritance. For example, the backing NWCP *t > k is reflected in Roro, in Kuni, and in Mekeo dialects. It would make for a neater set of changes if we could attribute it as a single change to the Roro/Kuni/Mekeo network, but we are prevented from doing this because in Roro it is preceded by NWCP *k > h, in Kuni it results in merger of NWCP *t and *k, and in Mekeo it is preceded by NWCP *k- > Mekeo 0. It would probably be wrong, however, to describe these as independent parallel changes. There are a number of instances (including this one) in Figure 2 where we may suspect that contact between neighbouring communalects has resulted in the diffusion of sound changes across communalectal boundaries.

There are two morphosyntactic innovations common to WCP languages. Firstly, they have lost the PPT/PCP verbal prefixes *-na- ‘irrealis’ and *-da- ‘counterfactual’, which are retained in SK languages. Secondly, they form intransitive verbs by full reduplication of the intransitive stem. Another shared innovation is the replacement of PCP *vati ‘four’ by *vani.

There is at least one case in Figure 2 where two interpretations of rule ordering are possible. The change PCP *t > k is reflected in both the NWCP network and in Gabadi, and could accordingly be attributed to the Gabadi/NWCP network. However, the environment of the change appears to be different in Gabadi, in that PCP *t becomes s (not k) both before and after i. Whilst the change *t > s is common in CP languages before a high vowel, only in Gabadi does it also occur after s. Furthermore, in Gabadi PCP *t > k; s/i has a voiced counterpart PCP *d > g; d/i. It is probable that the two changes occurred
It is instructive to organise the PCP consonants reconstructed from the correspondences in Appendix A into a paradigm:

<table>
<thead>
<tr>
<th>labialised</th>
<th>labial</th>
<th>coronal</th>
<th>dorsal</th>
<th>labialised</th>
</tr>
</thead>
<tbody>
<tr>
<td>stop, voiceless</td>
<td>*p&lt;sup&gt;W&lt;/sup&gt;</td>
<td>*p</td>
<td>*t</td>
<td>*k</td>
</tr>
<tr>
<td>stop, voiced</td>
<td>*b&lt;sup&gt;W&lt;/sup&gt;</td>
<td>*b</td>
<td>*d</td>
<td>*g</td>
</tr>
<tr>
<td>nasal</td>
<td>*m&lt;sup&gt;W&lt;/sup&gt;</td>
<td>*m</td>
<td>*n</td>
<td>*ŋ</td>
</tr>
<tr>
<td>fricative</td>
<td>*v</td>
<td>*y</td>
<td>*y</td>
<td></td>
</tr>
<tr>
<td>flap</td>
<td>*r</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>liquid</td>
<td></td>
<td></td>
<td></td>
<td>*l</td>
</tr>
<tr>
<td>glide</td>
<td>*w</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The labialised dorsals *k<sup>W</sup> and *g<sup>W</sup> are shown in parentheses because it is not completely certain that they should be reconstructed. They are discussed in section 3.2.2. The labialised labial *m<sup>W</sup> reflecting POC *m<sup>W</sup> must be reconstructed, although it is never reflected as [m<sup>W</sup>] in modern CP languages. Some CP cognate sets reflecting POC *m<sup>W</sup> show variation between reflexes with simple m and reflexes where m is followed by a rounded vowel: I take this rounding to reflect the labialisation feature of *m<sup>W</sup>. For example, POC *m<sup>W</sup>aja 'bandicoot' is reflected as Motu *mada but Balawaia *mora, PNGO *dim<sup>W</sup>an 'worm, maggot' as Kuni *sina but Balawaia *dimo. This patterning, which does not occur when the POC protophoneme is *m, can only be accounted for by reconstructing PCP *m<sup>W</sup>.

The same argument, based on just one cognate set each, can be advanced for the reconstruction of PCP *b<sup>W</sup> and *p<sup>W</sup>. The etymon containing *b<sup>W</sup> is PCP *b<sup>W</sup>ab<sup>i</sup>aya 'k.o. small lizard' (section 4.3.1). The etymon containing *p<sup>W</sup> is listed with supporting data below:

POC *p<sup>W</sup>ala(n) 'split (wood) into two'\(^{13}\)

VTZ: Kilenge *pale 'chop’, Mbula *pala ‘break; cut; split into two’, Pono *(rai)pa*la ‘split’
Bel: Gedaged *fale ‘chop’
NGO: Kove *pala
WLZ: Bola *pala ‘cut (meat+)’, Nakanai *(sulu)pola, Meramera *(val)pole
NI: Ramuaaina *(ta)pa*laq ‘halved; broken; as bamboo split down the centre’
SES: Lau *fola

PPT *(p<sup>W</sup>ala, pola) (no non-CP reflexes found)
PCP *p<sup>W</sup>aya

WCP: Motu *pola
NWCP: Lala *pa-pala, Kuni *foya, Mekeo *fola(pea)

\(^{13}\) Simultaneously. However, PCP *d > g; d/i is fed by the merger of PCP *d and *r as Pre-Gabadi *d. If the voiceless and voiced partner rules are taken to be simultaneous, this feeding relationship forces the inference that PCP *t > k occurred separately in the NWCP network and in Gabadi. However, the alternative assumption – that the NWCP network and Gabadi reflect a single change PCP *t > Gabadi/NWCP k – does not give a different subgrouping.

Although it is semantically and formally similar to POC *p<sup>W</sup>ala(n) 'split', there is some evidence that there was a separate POC verb *palaq 'chop’, reflected in Vitu *(yutu)valay(i) 'split’, Wogeo *fark(i) 'chop’ and in the first element of Meramera *(va)pole 'split’.
There are also cases where all reflexes show vowel rounding and one cannot tell which
of labialisation or rounding occurred in PCP, for example, PCP *(mota, m\text{wata}) 'snake' (<
POC *\text{m\text{wata}}, section 4.3.1). Note too that, although the three labialised labials can be
reconstructed in a few PCP etyma, there is a larger number of cases where the POC
labialised labials become plain labials in POC, for example, PCP *bae 'pig' (< POC *b\text{wawe};
section 4.3.1), PCP *bau 'bamboo' (< PNGO *b\text{wau}; section 4.3.2), PCP *vatu 'weave (a
mat)'(< POC *p\text{vatu}R 'tie together, plait'; section 4.3.4), PCP *guma 'hermit crab bait'(<
PWO *gum\text{w}a; section 4.2.1).

The position of PCP *\text{y} requires comment, in that it is treated as a fricative, rather than a
glide. Pawley (1975b) reconstructs this phoneme as *f (he has *\text{r} where I have *l, and uses
*D for the flap here denoted by *\text{r}). Lynch (1978b, 1983b) shows that Pre-Motu reflexes of
PCP *\text{y} were borrowed into neighbouring (non-Austronesian) Koita as \text{y}, and suggests that
PCP *\text{y} was an alveopalatal lateral. My inference from its reflexes ([j], [\delta], [f], [y], [l]) is
that it was an alveopalatal grooved fricative (i.e. the fricative corresponding to the
approximant [j]) such as occurs as the reflex of PPT *\text{y} in certain non-CP communalects. I
agree with Pawley and Lynch that PCP *\text{r} was a flap (hence its stop reflexes), whilst *l was
a liquid (either a lateral or some kind of rhotic).

3. NON-CP LOANS IN CP LANGUAGES

There are two interwoven tasks to be performed in relation to non-CP forms in CP
languages. The first is to establish criteria for their identification, the second to identify,
within the framework of PT phonological history, their non-CP sources and the CP
interstage(s) at which they were borrowed.

Loans are identifiable by two criteria: by non-CP canonic form and/or by unexpected
consonant reflexes. Both criteria can also be used to source loans.

3.1 ITEMS WITH NON-CP CANONIC FORM

The overwhelming majority of POC roots have the form *CVCV(C). Where a root had a
final consonant, this was retained in PPT, and is reflected in some non-CP languages with
the addition of a vowel. NMDX languages add -a, Saucic languages -i, as noted above. This
addition did not affect that part of the PT network from which PCP broke away, however,
and all POC/PPT final consonants were lost in PCP. It follows from this that where we do
encounter a form reflecting a final consonant and an added vowel in a CP language, we have
a loan. The clearest case of this is the following:

POC *\text{kawil} 'fish hook' (Blust 1972a)

\begin{itemize}
  \item MGN: Kakuna kaule
  \item VTZ: Tami kal
  \item Bel: Takia oul
  \item SCH: Manam kaula
  \item HG: Numbami awila
  \item NI: Tigak gaul, Tangga auil
  \item NWS: Mono aili, Kia yaili
\end{itemize}
The reconstruction of POC *kawil ‘fish hook’ is very well supported (only a sample of the evidence is given here), and the expected PPT reflex *qaul is attested. However, no CP language reflects the expected PCP form *yau. Hula reflects a borrowed form *kau, where the absence of final *-l and the presence of the initial stop k- suggest a source in the Kilivila/Louisiades network. The other CP languages reflect a borrowed form *kauli, whose added -i implies a Suauic source.

The thought that a term for ‘fish hook’ should be borrowed in the languages of people who exploit maritime resources is a surprising one. However, at European contact there was no line fishing in the CP region (Nigel Oram, pers.comm.; Tom Dutton, pers.comm.), a fact which renders the borrowing less puzzling. Indeed, the canonic form of another CP term for fish hook also betrays it as a loan:

POC *kima ‘clam (probably giant clam)’ (Dempwolff 1938)

MM: Tabar kima ‘clam’
SES: Gela yima ‘giant clam’; Lau ?ime ‘clam’; Longgu ?ima ‘large clam shell’
NCV: Mota gima ‘giant clam variety’
PN: Maori kima ‘giant clam variety’
MIC: Kiribati kima ‘large bivalve’; Carolinian siim ‘giant clam’

PPT *kima, *kimai ‘clamshell’

BM: Molima ?ima-?ima ‘a shell which is used as a scraper’
AT: Minavega kimia, Taupota kimia, Tawala kima ‘clamshell’

Borrowed form *kimai ‘shell fish-hook’

SK: Balawaia kimai ‘fish-hook’
WCP: Motu kimai ‘fish-hook’

Here two PPT forms are reconstructable: the expected form *kima, and a form with added *-i (or perhaps more accurately *-y, as it is treated in some Are/Taupota languages as a final consonant inviting the addition of *-a). This *-i is also reflected in the CP forms, indicating that they are a loan from an Are/Taupota language.

There are a few cases where CP languages reflect both inherited and borrowed forms of a PPT etymon:

POC *sawag ‘channel in reef giving passage to boats, landing place, anchorage’ (Pawley & Pawley, this volume)

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14 I use two asterisks (**) to denote hypothetical reconstructed forms which are not supported by the evidence.
CENTRAL PAPUAN CULTURE HISTORY: SOME LEXICAL EVIDENCE

NGO: Tuam (so)sau ‘sand’; Gitua sawa(gei) ‘on the beach’
VTZ: Sio sova, Roinji sawa ‘beach’
Bel: Wab sau ‘beach’
HG: Yabem sawa ‘space, empty area’
NWS: Roviana savaga ‘strait between two islands’
ADM: Titan ( mata)caw ‘strait, passage between islands’; Lou ( mata)ca, Wuvulu tawa ‘channel, passage between islands’
SES: ‘Are’are tawa ‘channel in reef, landing place’; Sa’a tawa ‘landing place’
MIC: Kiribati rawa ‘channel in reef’
FIJ: W. Fijian ( mata)da ‘beach’
PN: Samoan ava ‘channel through reef, anchorage’
PPT *sawaJ

AT: Minavega gawana ‘deep sea’
BM: Bwaidoka yawana, Yamalele awana ‘deep sea’

PCP *rawa ‘lagoon’

OM: Ouma roo, Magori rova ‘sea’
SK: Taboro davara, Maopa rawa( para), Hula rawa( para) ‘sea’
WCP: Motu davara ‘sea’; Motu dava ‘lagoon in atoll, water in chasm or ditch’

Taboro and Motu davara appear to be borrowed (the Taboro form perhaps via Motu), judging from their canonic form, whilst the other reflexes are directly inherited (Maopa and Hula para means ‘big’). A change in meaning has occurred whereby PT reflexes (other than Motu dava) now mean ‘open sea’. Blust (1984b) has pointed out that in Malaita and Micronesia a derived item whose root evidently reflects POC *sawaJ means ‘open sea’; we may infer that the PT meaning change also entailed some now lost derived form.

An apparent reconstructive difficulty here is that the borrowed CP form davara reflects POC/PPT final *ŋ as -r-. This is not as problematic as it might seem: a number of non-CP languages, including those of the Taupota group, have reflexes indicating that *ŋ became *[y], and there is evidence that in borrowings *[y] became r in CP languages.

POC *quli(n,ŋ) ‘steering oar, rudder; steer’ (Pawley & Pawley, this volume)

PPT *quli

GUM: Gumawana kunuwo ‘large paddle used as rudder on sailing canoe’
DD: Dobo kuliga ‘steer, stern’
KL: Kilivila kuliga ‘steer, steering paddle, rudder’

PCP *yui ‘rudder, steering paddle, steer’; borrowed form *kulig(a,i)

SK: Hula yiu ‘steer’; Hula kuligi ‘stem of canoe’

Here Hula reflects the same etymon twice: yiu is a metathesised form of the inherited PCP form *yui, whilst kuligi has a borrowed canonic form and borrowed consonant reflexes. Its final -i points to a Suauic source, but the expected Suauic reflex of PPT *quli is **kuli(ni),

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15 Lest the reader suspect that Taboro, Motu davara is an abbreviation of the form reflected in Maopa and Hula rawa-para, I should point out that the corresponding Taboro, Motu form would be **dava-bada.

16 The forms are:

SES: Lau (ma)kwa ‘open sea’, ‘Are’are (ma)kawa ‘open sea’, Sa’a (ma)tawa ‘open sea’
MIC: Kiribati (ma)rawa ‘open sea, deep sea’
and Hula -g-, reflecting PPT *-q-, rather points to a source among the languages of the Taupota group.

But the interpretation of this brief cognate set does not end there. The form kuliga is native neither to Dobu nor to Kilivila. As a consultation of Appendix A shows, the expected Dobu form is **kuia (PPT *I > Dobu əi; PPT *q > Dobu ø. And since non-coronal PPT final consonants are normally lost in Kilivila, the expected Kilivila form is *kuli. Both languages seem to have acquired the term kuliga from a Taupota source before PPT *I became NMDX *n. Given the ample evidence that the region of the non-CP languages has long had an important ceremonial exchange system and an economy dependent on trade, it is reasonable to infer that the form kuliga – and presumably other maritime terms too – found its way into widespread use among the sailors of the region, and as a result also found its way to Hula.

The two cognate sets below also appear each to reflect an inherited and a borrowed PT form. This inference is based entirely on canonic form, however (the putative borrowed forms reflecting a final consonant with added *-a), as cognates have not been found in the available data in non-CP languages, nor further afield.

PPT **(d,i,s)am(a,e)n 'salt'
PCP *rama; borrowed form *damena

SK: Maopa rama, Hula rama, Balawaia damena, Taboro damena, Hula tamena
WCP: Motu damena
NWCP: Roro tamena, Kuni damea

PPT **diçar ‘fat, coconut oil’
PCP *diya; borrowed form *diyara

SK: Hula riya, Balawaia diya, Taboro diyara ‘coconut oil’
WCP: Motu dia ‘ointment from coconut oil’; Motu diyara ‘fat’
NWCP: Doura tiara ‘fat’

I conclude this section with two loans which, as far as I know, are reflected only in Hula. Both include the PPT instrumental formative *qai- (Ross 1992:159) (from POC *kaiu ‘tree’), which does not otherwise occur in CP languages:

PPT *qai-war(a) ‘boat pole’

GUM: Gumawana kawala ‘pole a canoe, canoe pole’
DD: Dobu ?ewala ‘canoe pole’
SK: Hula kewala ‘long canoe pole’

PPT *qai-poli ‘k.o. canoe’¹⁷

DD: Dobu ?epoi ‘canoe’
SK: Hula kepø-kepo ‘double canoe’; Hula kepø ‘Motumotu canoe’

¹⁷ It is possible that PPT *-poli here reflects a POC verb *poli ‘travel about’, since a POC form *poli is certainly reconstructable: E. Fijian voli ‘indefinite movement’, Tongan foli ‘go here and there, round about’, E. Futunan foli ‘travel about, make a tour of’. 
3.2 ITEMS WITH NON-CP CONSONANT REFLEXES

The occurrence of unexpected reflexes of PPT consonants can be exploited in two directions to reconstruct the history of borrowing. Ideally, reconstructed borrowed forms can be ‘placed’ geographically and chronologically in the phonological histories of both the (non-CP) lending and the (CP) borrowing languages.

3.2.1 PLACING BORROWED FORMS IN THE LENDING LANGUAGES

Reconstructed borrowed forms can sometimes be placed among their non-CP sources on the basis of the non-CP phonological developments which they reflect. For example, I suggested above that the borrowed CP form *kauli ‘fish hook’ could be placed among the Suauic languages because of the final -i added after the PPT final consonant. Note, however, that if a borrowed form (identified by an unexpected consonant reflex) happens not to contain a reflex of one of those PPT segments which has been subject to phonological change in a sub-group of non-CP languages, then there is no way that we can place it. Take, for example, the Hula form lima ‘bail out’:

POC *(l,n)imas ‘canoe bailer’ (Dempwolff 1938)
PPT *(l,n)ima(s) (no non-CP reflexes known)
Borrowed form *lima

SK: Hula lima ‘bail out’ (expected form **ima)

We can be reasonably confident on both semantic and formal grounds that Hula lima reflects POC *(l,n)imas. It is also reasonable to infer that the form that was borrowed was *lima. We infer that it is a loan, because the inherited PCP form would be **ima. But all we can say about the source language is that it had not undergone the change PPT *l > NMDX n. The source language could have been an NMDX language prior to this change, or a language elsewhere in the non-CP region, or an Oceanic language outside the PT cluster.

Sound changes in non-CP languages, noted above, allow us to place a few CP loans. NMDX languages are characterised by two sound changes. The first, POC/PPT *l > n, to which we have just referred, is reflected to my knowledge in only one CP item, *yunu, evidently borrowed from an NMDX language:

POC *kuluR ‘breadfruit, Artocarpus altilis’ (Grace 1969: *kulu(r))
PPT *qunur

DD: Dobu ?unu
BM: Kalokalo kunu
AT: Wedau kunori
SUA: Sariba ?unuli

Borrowed form *yunu (expected PCP form **yui)

SK: Balawaia yunu, Hula yunu
WCP: Motu unu
NWCP: Roro unu, E. Mekeo unu

The second NMDX sound change, POC/PPT *s > NMDX *r or *y, is of less potential use because the inherited PCP reflex of POC/PPT *s is *r, so we cannot use this rule to spot borrowed forms.
We have noted that the Are/Taupota languages are set apart from other NMDX languages by the devoicing of PPT \(*b, *d\) and \(*g\). As well as the reflexes of putative PPT \(*davar\) ‘reef’, noted below, we also find reflexes of the PPT etyma \(*bune\) ‘pigeon’, \(*guru(n)\) ‘sword grass, Imperata cylindrica’, \(*guya-guya\) ‘cassowary’, \(*vadir\) ‘k.o. pandanus’, and \(*leja(n)\) ‘nit’ which reflect probable Are/Taupota devoicing. The data are listed below with annotations where relevant.

POC \(*bune\) ‘pigeon’ (Dempwolff 1938)

PPT \(*bune\)

AT: Are bune-bune, Tawala bune-bune
BM: Iduna bune-bune
DD: Dobu bune-bune
KL: Kilivila bu-buna, Misima buni-buni

Borrowed form \(*pune\) (expected PCP form **bune)

SK: Maopa pune, Taboro pune
WCP: Motu pune

PMP \(*guRun\) ‘sword grass, Imperata cylindrica’\(^{18}\)

POC \(*guRu(n)\)

MGN: Maeng gur-gur ‘grass’
WLZ: Meramera gulu-gulu ‘grass’
SES: Bugotu gu-guru ‘grass’

PPT \(*guru(n)\) (no non-CP reflexes found)

Borrowed form \(*kulu\) (expected PCP form \(*gulu*)

SK: Taboro kuru-ru, Balawaia kulu(ka), Hula uru ‘species of grass’
WCP: Motu kuru-kuru
NWCP: Doura ?uru-?uru

It happens fairly frequently, both for directly inherited and for borrowed forms, that no non-CP cognates are found for a form which is attested in CP languages. But this is not especially surprising.\(^{19}\) If we are right in equating Vanderwal’s date of 100 BC with the settlement of CP speakers on the south-west coast of Papua, then more than two thousand years have passed since the separation of PCP from other PT languages. According to Allen (1977c), rapid cultural change spread through the Collingwood Bay (Are/Taupota) and CP areas around 1000 AD. This seems likely to have coincided with a major influx of non-CP loan words into CP languages, and a millennium has elapsed meanwhile. At either of these time depths, we would expect substantial lexical replacement to have occurred in non-CP languages, which seem to have long formed a network, but one whose patterns have ebbed and flowed repeatedly.

\(^{18}\) This reconstruction is based on Philippine reflexes e.g. Ifugao gulun, Bikol gogon ‘sword grass, Imperata cylindrica’ and the Oceanic data listed here.

\(^{19}\) The number of CP items for which no non-CP cognates have been found is probably magnified by the lack of dictionaries or extensive vocabularies in many non-CP languages; that is, the cognates may exist, but have yet to be recorded.
PPT *guya-guya 'cassowary'

AT: Tawala kuya-kuya, Taupota kuya-kuya, Garuwahi kuya-kui, Wagawaga kuya-kuya
SUA: Kwato kuya-kuya, Tubetube guyua(bou)

PCP *guya-\(g(y)u)a\)

OM: Magori guya-ga, Ouma guya-\(?a\)
SK: Hula ko-ko-ko-ko (expected form **kura-kura)
WCP: Motu ko-ko-ko-ko (expected form **gula-gula)

The Magori and Ouma forms are probably directly inherited, but the Hula and Motu forms clearly are not, and seem to reflect Are/Taupota devoicing.\(^{20}\) Borrowing evidently occurred after PCP *-\(y\)- > Hula -\(r\)-, Motu -\(l\)-.

PPT *vadir 'k.o. pandanus'

KL: Kilivila vadila 'pandanus fruit'

Borrowed form *\(v\)atila (expected PCP form **\(v\)adi)

SK: Maopa vaira, Hula vaira 'pandanus'

It is \(*\text{t},\) not \(*\text{d},\) that is regularly lost in the Keapara chain to which Maopa and Hula belong, and it is therefore reasonable to infer that the borrowed form was *\(v\)atila, reflecting stop devoicing.

POC *lejan 'nit' (Ross 1988)

PPT *\(l\)eja(n); Nuclear PT *\(n\)eda

DD: Dobu neda
BM: Iduna yeda
AT: Gapapaiwa geda, Wedau geda, Tawala neda
SUA: Sariba neda
KL: Kilivila lesa, Sudest le-leji

Borrowed Pre-SK form *\(l\)eta (expected PCP form \(\text{**leta}\))

SK: Taboro reta, Maopa lea
WCP: Motu \(v\)eda (expected form **\(l\)eda)
NWCP: Lala \(m\)eta (expected form **\(l\)eta)

Taboro reta and Maopa lea reflect a borrowed form *\(l\)eta, which shows devoicing of expected *-\(d\)- (from PPT *-\(j\)-). The initial consonants of these forms also betray them as borrowed, as they appear to reflect PCP *\(l\)< PPT *\(r\)> rather than expected PCP *\(y\)< PPT *\(f\>). The borrowed form *\(l\)eta is a little puzzling, however: if it were an Are/Taupota form, we would expect **neta, reflecting the sound change PPT *\(l\)> NMDX n. To complicate matters further, the initial consonants of the Nuclear PT forms reflect *\(n\)eda, not **\(l\)eda or **\(n\)eda as we would expect, and the initial consonants of the Motu and Lala forms are other than we would expect of reflexes of directly inherited PCP *\(y\)eda or of borrowed *\(n\)eda, *\(l\)eda or *\(n\)eda. I have no explanation for these problems.

\(^{20}\) An alternative hypothesis is that the term was borrowed into Hula as **gogogogo, and underwent Hula stop devoicing before being further borrowed into Motu. Against this is the observation that Hula-to-Motu borrowing is otherwise not known.
I will mention here three other borrowed forms in CP languages whose consonant reflexes are evidence that they are loans. The first is Hula *kuligi ‘stern of canoe’, discussed in section 3.1, which reflects PPT *ŋ as -g-, indicating a Taupota origin. The second is Motu *nuse ‘squid’, in the following cognate set:

POC *nusa ‘squid’ (Pawley 1978)
PPT *nusa

AT: Maisin neusa
BM: Kalokalo nui, Bwaidoka nui

Borrowed form *nute = *[nuse] (expected PCP form **nura)

WCP: Motu nuse (expected form **nuda)
NWCP: Lala nude (expected form **nuda)

Since PPT *s became PCP *r (assumed to be a flap), Motu nuse must be a loan from a language in which PPT *s remained s. As the lenis correspondence set in Appendix A shows, such languages fall into three scattered groups: the Are chain, the Suauic network and the Kilivila family. Beyond the fact that one modern Are language, Maisin, has a cognate with -s-, I have no means of knowing which group is the source.

The third item is contained in the set below:

POC *sawu(q) ‘anchor’ (Dempwolff 1938)
PPT *sowa(q) [note vowel metathesis]

GUM: Gumawana (vai)lowa ‘anchor something (e.g. a canoe, a boat)’
AT: Tawala yogo(na) ‘anchor something (e.g. a canoe, a boat)’
KL: Kilivila lola, Sudest sowa-sowa

Borrowed form *rogo (expected PCP form **rowa)

SK: Balawaia royo, Hula roko
WCP: Motu dogo
NWCP: Lala do?o, Roro to?o, E. Mekeo (i)koo

The borrowed form *rogo shows *-go for expected **-wa. This sound change occurs in Tawala, attested in yogo- ‘anchor something’ above, and in ago ‘spouse’, from POC/PPT *qasawa. We may therefore narrow the source of *rogo to the Taupota chain, and perhaps to the southernmost part of that chain comprised of Tawala and its neighbour dialects.

3.2.2 ‘NUISANCE’ CONSONANT REFLEXES

In this section I shall examine items containing the four ‘nuisance’ phonemes PCP *p, *k, *kw and *gw. I label them ‘nuisance’ because their status is difficult to determine. Their frequency is not high, and a number of the items in which they occur are clearly loans. Indeed, this number is high enough to tempt one to think that all items in which they occur are loans. This assumption would be a convenient one, and I made it with regard to *p in the first version of this paper. However, the amount of data available to me has increased sufficiently for me to think it quite likely that *p and *k occurred in PCP, and possible that *kw and *gw did so too, although a good number of apparent reflexes of all four phonemes in fact have other sources.
In my discussion of consonant grade in Western Oceanic languages in Ross (1988, Chapter 3), I made the point that in a number of Western Oceanic subgroups POC *p and *k each have two reflexes, one fortis and one lenis. The fortis and lenis phonemes are not reconstructable for POC itself, only for a number of its descendants. For PPT, the reconstructed reflexes are:

POC  *p  *p  *k  *k, *q
fortis  lenis  fortis  lenis
PPT  *p  *v  *k  *q

In the cognate set below PCP *p appears to be a directly inherited reflex, via PPT *p, of POC, PWO or PNGO *p:

PNGO *poti ‘bladder’
VTZ:   Mbula pot, Pono pot
NI:     Tabar puti, Ramuaaina put(na-ta-m<in>imi)

PCP *poti-
AT:     Are poti-, Tawala posi-
BM:     Iduna fehi-

POC  *qone
POC  *kusupe ‘rat’ (Grace 1969)

POC *gome ‘sand, beach’ (Dempwolff 1938)
PPT *gome (no non-CP reflexes found)

The evidence for PCP *k is considerably stronger than for *p. Some of the POC reconstructions which head sets containing PCP *k are very well established indeed, and the cognate sets contain no evidence that the CP reflexes are not directly inherited. Two examples are cited below; others are listed in Appendix B.

POC  *kone

The final hyphen indicates that these items are inalienably possessed and take a suffix indicating the person and number of the possessor.

21 The final hyphen indicates that these items are inalienably possessed and take a suffix indicating the person and number of the possessor.
Having shown that PCP *p and *k are reconstructable, we must also recognise that apparent reflexes of these phonemes also occur in loan words. We encountered some of these above, namely those cases where the source of the loan is an Are/Taupotia item that has undergone devoicing of PPT *b or *g. The items tabulated above are PPT *bune ‘pigeon’, *guru(n) ‘sword grass, Imperata cylindrica’, and *guya-guya ‘cassowary’.

There are also cases where evidence internal to the reflexes themselves indicates that they are borrowed. Whereas Maopa yanave ‘tern’ in the set below appears to be a directly inherited reflex of PPT *kanawe, Motu kanaye clearly is not: it reflects PCP *w irregularly, and its initial k- does not correspond with Maopa y.

POC *kañave ‘tern’

SES: Lau anakwe ‘tern’; Arosi ?anawe ‘k.o. white sea bird, Phaeton aethurus’

PPT *kanawe

<table>
<thead>
<tr>
<th>AT:</th>
<th>Tawala kanawe</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD:</td>
<td>Duau kana-kanawe</td>
</tr>
<tr>
<td>KL:</td>
<td>Nimoa kan-kanau</td>
</tr>
</tbody>
</table>

PCP *yanawe; borrowed form *kanaye

<table>
<thead>
<tr>
<th>SK:</th>
<th>Maopa yanave</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCP:</td>
<td>Motu kanaye (expected form **(y)anave)</td>
</tr>
</tbody>
</table>

In the case of PPT *kawe, both Motu and E. Mekeo have irregular reflexes (which, however, correspond with each other):

PPT *kawe ‘parrot’

| BM:  | Bwaidoka ka-kawe, Diodio ka-kawe ‘feather’ |

Borrowed form *kaye ‘male (green) Eclectus parrot’ (expected PCP form **yawe)

| WCP: | Motu kae-kae |
| NWCP: | E. Mekeo a?e-a?e |

The two examples above exemplify my reasons for calling PCP *k a ‘nuisance phoneme’. In cases such as these an irregular reflex of a phoneme other than *k tells us that the form is borrowed. How can we then be sure that the reflexes of POC *qone ‘sand, beach’ and *kusupe ‘rat’ are not also borrowed? The answer (especially where we know of no non-CP cognates) is that we cannot be sure. Some of the instances of *k which are listed in Appendix B may well be borrowed forms: we cannot tell. And in principle the same is true of *p, where the smaller number of forms containing it renders an assessment even more difficult.

The origins of the other two nuisance consonants, the labiodorsals *kʷ, *ɡʷ are different from those of *p and *k. The latter do occur in items reflecting POC etyma, but the labiodorsals rarely do so. However, it appears that the labiodorsals may sometimes be directly inherited from PPT, and therefore reconstructable in PCP.

I argued in connection with the reconstruction of the PCP consonant paradigm in section 2 that PCP *pʷ and *mʷ are reconstructable, even though their labial feature is reflected only in the rounding of a following a to o. The same is true of just one known item with putative PCP *kʷ:
PPT *kwapir 'skin'

BM: Iduna kwafili- 'skin (of fruit, plants, animals), bark (of tree)'
AT: Basilaki opi-, Wedau opi-
KAK: Kakabai kwapir-
SUA: Tubetube kwapir-

PCP *kwapir-

OM: Ouma ?opi-, Magori opi-, Yoba kopi-
SK: Balawaia kopi-, Hula kopi-
WCP: Motu kopi

This raises the question, do some forms in which k does occur perhaps also reflect directly inherited PCP *k? Or does the very presence of labialisation betray them as loans? I am inclined to answer 'yes' to the latter question, as this would enable us to say that labialisation is regularly lost or transferred to the following vowel (always a) in PCP. But the data are so sparse that I am not sure whether this generalisation holds. Like *kwapir 'skin', putative PCP *kwala denotes a major body part, a fact which tempts me to attribute it to direct inheritance. But the two known non-CP reflexes do not correspond with each other (Wedau δ reflects PPT *y, Taupota l reflects PPT *r): one of them must be borrowed. And if that is so, then there is no reason why the CP forms should not also be loans.

PPT (?) *kwa(r,y)a 'head'

AT: Wedau kwoa-, Taupota kola

PCP (?) *kwala

SK: Hula kwala, Balawaia kwala
WCP: Motu kwara
NWCP: Doura ara, Lala ola, Roro ara, Kuni ola

Other cognate sets reflecting a putative PCP *k are listed in Appendix B.

The item below, POC *karawa ‘k.o. large shark’, seems to have spread through at least part of the New Guinea Oceanic area, including the CP languages, by borrowing rather than by direct inheritance, to judge from the unexpected forms listed below. Why this happened is not known. PPT reflects POC *k as *kw rather than as *k (the same is true of POC *kawak, PPT *kwa[jwa]k ‘dog’; see Appendix B): 22

POC *karawa ‘k.o. large shark’

NGO: Gitua arawa ‘shark’
VTZ: Mbula koro ‘shark’
BV: Vitu kaliya ‘shark’ (expected form **karava); Bali kaluya ‘shark’ (expected form **karava)
PN: Samoan alava ‘k.o. shark’; E. Uvean ?alava ‘k.o. shark, Carcharhinus spp.’; Rennellese ?agaba ‘large shark sp., probably black-tip shark, Carcharhinus melanopterus’
NCL: Yålayu ārau, Kumak ārau ‘k.o. shark’

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22 The forms Numbami koyawiIa, Daui oyauli, Kilivila, Muyuw kwau, all ‘shark’, also seem to reflect this spate of borrowing, but their forms are simply too different to be sure that they share the same source.

23 I am grateful to Paul Geraghty for drawing my attention to this comparison.
PPT *kʷarawa

DD: Dobu kʷalawa ‘shark’
GUM: Gumawana kolao ‘shark’
BM: Yamalele walało ‘shark’ (expected form **walawa)
AT: Gapapaiwa kʷarabo ‘shark’ (expected form **kʷalawa)

Borrowed Pre-WCP form *kʷayava; borrowed Pre-Roro-Mek form *kaibo (expected PCP form **kʷarawa)

WCP Motu kʷalaha ‘shark’ (expected form **kʷarava); Gabadi oava ‘shark’ (expected form **orava)
NWCP: Lala olava ‘shark’ (expected form **valava); Roro kaipu ‘dugong’ (expected form **aeaba); E. Mekeo kaifu ‘shark’ (expected form ***?olafu)

Note that Roro kaipu and Mekeo kaifu reflect a borrowed form *kaibo, which is consistent with a loan from an Are language with a form like Gapapaiwa kʷarabo.

The putative PCP phoneme *gʷ is less troublesome than *kʷ only because it occurs less often. The two sets below have regular correspondences and look like directly inherited forms:

PPT *gʷabe ‘thigh’

AT: Are wape, Doga oape

PCP (?) *gʷabe ‘thigh’

OM: Ouma gobe, Magori gobe
SK: Kalo kʷape
NWCP: Roro ape

PPT *gʷau ‘ten’ (?)

DD: Sewa Bay gʷau(ina) ‘thousand, very many’
KL: Nimoa waw(ate) ‘ten’

PCP (?) *gʷau ‘ten’

OM: Bina au(kana)
WCP: Motu gʷau(ta), Gabadi ou(ka)
NWCP: Doura ou(ka), Lala ou(ka), E. Mekeo ou(?a-na)

There is one possible source of PCP forms with *kʷ and *gʷ which is intriguing. I mention it here because it merits further investigation. In each of the cases below, putative PCP *kʷ and *gʷ seem to be derived from the POC/PPT labialised labial stops *bʷ and *pʷ.

PPT *bʷarawa ‘rope, vine’

AT: Wedau barawa, Gapapaiwa barawa, Tawala balawa ‘rope’
BM: Yamalele bulava ‘rope’; Kalokalo bulava ‘vine, string’

PPT *qurava ‘vine’

AT: Wedau yurawa, Tawala gulawa ‘string’; Gapapaiwa urava ‘rope’
DD: Duau gulaha ‘string’
Borrowed form *kwanau(a) ‘string’

SK: Maopa wanau  
WCP: Motu kwanau  
NWCP: Roro anaua

POC *bwanor ‘nasal mucus’ (Ross 1988)

PCP (?) *kwanwa

SK: Hula kwamo, Balawaia kwamo  
WCP: Motu kwamo

PEOC *(p, b)atu ‘knot, tie a knot’

SES: Arosi pou-pou ‘knot of bowstring, round object’; Lau gwou ‘lump, knot in string or wood’  
MIC: Marshallese pwoc ‘knot, be knotted’

PCP (?) *kwaatu

SK: Hula kwau ‘tie’  
WCP: Motu kwatu ‘knot’

Proto Ngero/Vitiaz *bwal ‘buttocks’

VTZ: Mbula mbule-, Tami (ka)bole(n-pu)  
NGO: Gitua bwale, Kove vole ‘hip’

PPT *bwale

KL: Kilivila pala

PCP (?) *gwal ‘knot, plait’

SK: Hula kole, Balawaia gale

Both individually and together, these forms raise a number of questions which are beyond the scope of this paper. I have observed elsewhere, however (Ross, forthcoming), that a number of non-CP languages reflect a form *kwatea ‘greater yam, Dioscorea alata’ which displays North Malaitan reflexes (*p > k; *s > t) of POC *pasepe.

Our discussion of the nuisance phonemes and their reflexes has not led us forward in our understanding of PCP culture history. What it has done is to remind us that lexical data are not always as easy to interpret historically as Austronesianists often seem to imply, and that given the nature of traditional western Oceanic society, with its shifting trade networks and shifting inter-group relationships, we may often be dealing with unrecognised layers of borrowing, some of it perhaps from Oceanic languages (and groups of languages) which no longer exist.

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24 This item is apparently distinct from the semantically and formally similar POC *patu ‘plait, weave (mats, baskets)’;

VTZ: Mbula mbat ‘tie together leaves, rope’  
ADM: Mussau atu ‘plait (mats, baskets)’  
PN: Tongan atu ‘begin making a mat, compose’, Samoan atu ‘plait, compose’  
PCP *vatu ‘weave (a mat)’  
WCP: Motu hatu ‘weave (a mat)’  
NWCP: Lala vaku ‘weave (a mat)’
3.2.3 PLACING BORROWED FORMS IN THE BORROWING LANGUAGES

Borrowed forms can be placed in relation to the phonological history of the borrowing languages by reconstructing the probable form of the loan and then examining which sound changes it has been affected by since it was borrowed.

Obviously, the more complex the phonological history of a language, the more precisely loans can be located within that history. Within the CP family, it is the WCP network which displays the most complex history, and therefore provides the best opportunity for placing loans. One observation can be made about the Sinagoro/Keapara network, however: in general, where a loan is eligible for the application of one of the sound changes which divided the Keapara dialects from the rest of the network, the sound change applies. Thus among etyma already discussed, Maopa, Hula vaira ‘pandanus’ (< *vatila), Maopa lea ‘nit’ (< *leta) both show loss of *t, and Hula tamena ‘salt’ (< *damena), Hula roko ‘anchor’ (< *rogo) both show stop devoicing (but Hula kuligi ‘stem of canoe’ does not). This means that these loans occurred before the application of these sound changes and therefore before the separation of Keapara from the network.

The sound changes which have affected WCP languages, set out in Figure 2, offer fruitful ground for locating loans, and an interesting observation emerges. Loans are not scattered at various points down the tree. Instead, if we look for a point in the tree at which the largest possible number of loans could have occurred, we find a cluster of loans which were not affected by the sound changes which mark the split of the Nuclear West Central Papuan network from Gabadi, but which are affected by sound changes which follow it. In other words, there seems to have been an influx of loans into Nuclear West Central Papuan, the network of dialects ancestral to Doura, Lala, Roro, Kuni and Mekeo.

The cognate set below serves to illustrate several points:

POC *kuRita ‘octopus’ (Dempwolff 1938)
PPT *qurita
    AT: Tawala kulita
    SUA: ‘Auhelawa ulita

PCP (?) * yulita (borrowed form *(y)ulita)
    SK: Balawaia yulita, Maopa yulia, Hula yulia
    WCP: Motu urita
    NWCP: Lala ulita (expected form **ulika); Roro urita (expected form **uriha); E.
            Mekeo ulita (expected form **unika)

Firstly, the Sinagoro/Keapara and Motu forms here look as if they are directly inherited and so, following the canons of the comparative method, I have reconstructed a PCP form. The Lala, Roro and Mekeo forms, however, are clearly borrowed. The form of the loan is such that it could have come from Balawaia or Motu. But this seems rather unlikely. At this early stage in the dispersion of the CP languages, it seems very probable that the communities represented here remained in seaborne contact with each other, and rather improbable that a term like ‘octopus’ should be lost by part of the network, only to be reacquired sometime later. A more plausible scenario is that the form was lost by the whole network early in its history, and that the CP forms listed above all reflect the reacquisition, presumably from a non-CP source (this is a reasonable assumption, given that where we have found evidence for the sources of loans, they have been non-CP). If the borrowed form was *(y)ulita, as the
NWCP reflexes require, then the resulting Sinagoro/Keapara and Motu forms would be indistinguishable from directly inherited forms. We observed above that both inherited forms and loans undergo the Keapara sound changes: Maopa, Hula yulia reflect *t-loss.

Below I tabulate the application of sound changes (drawn from Figure 2) to the form *yulita (i) assuming that it was a PCP form; (ii) assuming that it was borrowed into the NWCP network (I have ignored the PCP *l > Roro r change, as the phonetic realisation of the liquids is neither certain nor relevant). Assumption (ii) gives the correct outputs for Lala and Roro (but not for Mekeo, where we infer that the loan took place much later):25

(i) PCP **yulita

<table>
<thead>
<tr>
<th>PCP *k, *y, *g &gt; G/NWCP *?</th>
<th>G/NWCP **?ulita</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCP *t</td>
<td>NWCP *k</td>
</tr>
</tbody>
</table>

(ii) Borrowed *(y)ulita

<table>
<thead>
<tr>
<th>NWCP *k &gt; Roro h</th>
<th>Roro **?uriha</th>
</tr>
</thead>
</table>

Above I discussed the widespread borrowing of reflexes of POC *karawa and indicated that its CP reflexes seem to represent two borrowed sources. The relevant data are as follows:

POC *karawa ‘k.o. large shark’
PPT kwarawa

BM: Yamalele walabo ‘shark’ (expected form **walawa)
AT: Gapapaiva kwarabo ‘shark’ (expected form **kwalawa)

Borrowed form *kaibo (expected PCP form **kwarawa)

NWCP: Roro kaipu ‘dugong’ (expected form **aeaba); E. Mekeo kaifu ‘shark’ (expected form **?olafu)

The reconstruction of the borrowed form *kaibo above assumes that, as in the languages of the Kilivila/Lousiades network, the medial liquid reflected in Gapapaiva kwarabo had been palatalised before borrowing. The application of sound changes is tabulated below (I have not tabulated changes for the expected PCP form **kwarawa, as the evidence that it did not occur is very clear):

PCP *k, *y, *g > G/NWCP *?

<table>
<thead>
<tr>
<th>PCP *b &gt; RKM *p</th>
<th>RKM *kaipu &gt; Roro kaipu</th>
</tr>
</thead>
<tbody>
<tr>
<td>RKM *p &gt; E. Mekeo f</td>
<td>E. Mekeo kaifu</td>
</tr>
</tbody>
</table>

Here again we see that the assumption of borrowing at the NWCP interstage gives the correct outputs.

There are several other items where a rule-ordering analysis leads to the same result: that the application of rules to borrowed items is consistent with their having been borrowed

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25 It is probable that E. Mekeo, a land-locked language, borrowed ulita ‘octopus’ from Roro urita. I suspect that, if a much larger Mekeo data base were available, we would find more borrowings from Roro. E. Mekeo is the only CP language for which I have found a reflex of POC *tabi(r,R,J)a ‘wooden dish’. But the E. Mekeo form is kapia ‘dish’ (expected form **afi(n,J)a), which cannot be directly derived from a borrowed form *tabi(J,y)a by any of the sound changes constituting Mekeo phonological history. If, on the other hand, we assume that the form was borrowed into NWCP and that the rule NWCP *t > Roro k applied before the term was borrowed by Mekeo, then we have a plausible history.
when the NWCP network was still a unity. They are listed here with annotations regarding rule applications.

POC *donu 'k.o. rock cod, coral trout, groper, *Epinephelinae spp.' (Hockett 1976: Proto Central Pacific)

FIJ: E. Fijian *donu *k.o. rock cod, k.o. coral cod'; Rotuman *tonu 'Peacock rock cod, *Cephalopholis argus'

PPN *tonu 'coral trout' (Hooper, this volume)

PPT *donu (no non-CP reflexes known)

Borrowed form *donu (expected PCP form *donu)

WCP: Motu *dono 'Queensland groper, *Promicrops lanceolatus'

NWCP: Lala *dono 'k.o. fish' (expected form *tonu); Roro *tonu 'k.o. fish' (expected form *konu)

The sound correspondence represented by the initial consonant of Motu *dono, Lala *dono, Roro *tonu is not the one reflecting PCP *d (as we would expect if the term were directly inherited) but the one which normally reflects PCP *r (< POC/PPT *s). This means that *donu was borrowed after the application of the sound changes PCP *d > NWCP *t and PCP *r > NWCP *d.

PPT *leqwa 'sea, salt'

AT: Boianaki *neaga 'salt'

BM: Diodio *leaya 'salt'; Iduna *lahaya, Kalokalo ligwa 'sea'

DD: Dobu *le?awa 'beach'

SUA: Tubetube *dekawa 'sand, beach'

Borrowed form *ria?a 'salt'

WCP: Gabadi *dia?a

NWCP: Doura *dia?a, Lala *dia?a

The criterial form here is Lala *dia?a, which tells us that the initial consonant correspondence is the same as the one found in the previous set, with the same implications.

POC *sapuru 'k.o. fish, possibly goatfish, *Parupeneus and *Upeneus spp.'

PPN *hafulu 'goatfish, most likely *Parupeneus and *Upeneus spp.' (Hooper, this volume)

PPT *savuru (no non-CP reflexes known)

PCP *ravulu 'k.o. fish' (borrowed form *tavuru)

WCP: Motu *dahuru 'k.o. fish'

NWCP: Roro *kapuru 'k.o. fish' (expected form **taburu)

Here the Motu form is the expected reflex of PCP *ravulu, but Roro reflects a borrowed form **tavulu, to which the sound changes PCP *v > RKM *b and NWCP *t > Roro *k have applied. The fact that the borrowed form has an initial *t- is not surprising: the lending language probably had *s-, but as CP languages have never had a phoneme /s/, this was reinterpreted as *t-.

POC *kaRapa 'mullet; probably diamond-scaled mullet, *Mugil vaigiensis'

Bel: Gedaged *galef 'k.o. sea fish with long grey and white stripes'

MIC: Woleaian *xer'f 'diamond-scaled mullet, *Mugil vaigiensis'

FIJ: E. Fijian *kava 'diamond-scaled mullet, *Mugil vaigiensis'
PPN *kafa ‘diamond-scaled mullet, *Mugil vaigiensis*

PPT *(k,q)arava (no known non-CP reflexes)

Borrowed form *kalava (expected form *(k,y)alava)

SK: Balawaia kalava ‘mandarin fish, *Callionymus* sp.’

WCP: Motu karava ‘k.o. fish’

NWCP: Roro heroba ‘k.o. fish’ (expected form **?araba)

The Roro form shows that borrowing occurred before the application of PCP *v > RKM *b and of NWCP *k > h. (Borrowing into Motu occurred after PCP *v > Motu h.)

There are occasions when a rule-ordering analysis can help to disambiguate a difficult loan history. The two sets below are drawn up on the basis of Occam’s razor (i.e. assuming the simplest sequences of changes), but this may not reflect what actually occurred.

PPT (?) **tawar ‘reef’

BM: Yamalele tawala, Bwaidoka tawali

AT: Tawala tawali

DD: Duau tehala

SUA: Sariba tahali

KL: Misima taval ‘island’

Borrowed form *tawala

WCP: Gabadi kavara ‘sand’

NWCP: Doura kavara ‘sand’

PPT (?) **dabar ‘reef’

BM: Yamalele dabala

DD: Dobu dabala

Borrowed form *tabal(a,e)

NWCP: Roro kapare

PPT (?) **tawar is reconstructed on the basis of the forms listed here (there are no known non-PT cognates), on the assumption that final-vowel alternation between -a and -i reflects added vowels following a PPT final consonant. This presupposes that Bwaidoka, Tawala tawali is borrowed from a Suauic language where the added vowel is -i. Gabadi, Doura kavara appears to reflect a borrowed NMDX form *tavala.

PPT (?) **dabar is similarly reconstructed, and provides a source for the borrowing of Roro kapare.

It is almost self-evident, however, that the putative PPT forms **tawar and **dabar, both meaning ‘reef’, did not co-exist, but reflect a single etymon. On the basis of the correspondences in Appendix A, the simplest hypothesis is to reconstruct PPT *davar, making the assumptions that (i) the -b- of dabala reflects a loan from a language in which PPT *v- was reflected as [b], and (ii) the t- of tawala, etc. reflects a loan from an Are/Taupota language, where PPT stops are normally devoiced.

The assumption that Gabadi, Doura kavara and Roro kapare are borrowed from different non-CP forms also follows from the application of the comparative method, since Gabadi, Doura k and Roro k normally never correspond. However, it is quite plausible that they are
related as the result of loan within the WCP network, and this is what we wish to check by rule-ordering analysis.

The result is interesting. Roro *kapare is derived from the borrowed form *tabal(a,e) by the application of the sound changes PCP *b > RKM *p and NWCP *t > Roro k. Note that the borrowed form here must be reconstructed with initial *t-. If, on the basis of the non-CP reflexes, we posit a borrowed form with initial *d-, we find on examination of Figure 2 that there is no attested sound change which will generate Roro initial k-. This implies that the borrowed form again reflects Are/Taupota stop devoicing.

The analysis of the Roro reflex again points to a loan at the NWCP interstage. When we turn to the analysis of Doura kavara, however, we encounter a difficulty. The only sound change which will generate Doura k- is PCP *t > NWCP *k. In other words, where all the other cases we have examined were apparently borrowed at the NWCP interstage, we must here posit an earlier loan – at the Gabadi/NWCP interstage. It seems so implausible one item should have been adopted earlier than all the others that it is preferable to look for an alternative hypothesis. The one which offers itself is that the form borrowed by Doura was something like *kabare, the intermediate stage in the development of the Roro form, that is, this is a case of secondary borrowing within the NWCP network, not a special case. (Note that as Gabadi was never a part of the NWCP network, derivation of Gabadi kavara does not give rise to the same difficulty.)

One consequence of this analysis is that the forms from which PPT (?) **tavar 'reef' was reconstructed above are irrelevant to the reconstruction of the CP forms. However, it is not the tracking down of this piece of detailed history that is important here, but simply the fact that a rule-ordering analysis, especially when it is applied to a number of etyma, can be of considerable use. I have illustrated here that it can be used to illuminate apparent inconsistencies. And in the present context I have shown that it can also be used to determine the interstage in the phonological history of a language group at which borrowing occurred.

4. MARITIME AND TERRESTRIAL TERMINOLOGIES AND CULTURE HISTORY

4.1 PULLING SOME THREADS TOGETHER

The analysis of loans in CP languages has proven to be a difficult and in parts complicated process. However, as well as illustrating how tricky the analysis of loans can be, it does allow us to make a number of inferences about the culture history of CP speakers.

Firstly, the presence of non-CP loans in CP languages indicates substantial contact between CP speakers and speakers of one or more non-CP languages. Secondly, there is a fairly strong tendency for loans to show signs of an origin in the Are/Taupota (i.e. Collingwood Bay) area. Thirdly, these loans entered CP languages at a time when the Nuclear West Central Papuan network had not yet dispersed into its present-day member languages. The sound changes which characterise the Nuclear West Central Papuan network had already taken place, but those which characterise its member languages had not. These findings fit well with the archaeological scenario that there was some kind of cultural upheaval about a thousand years ago in both the Collingwood Bay and CP areas, and support Swadling's suggestion that the two were associated: non-CP speakers from Collingwood Bay brought innovations to Central Papua.
One impetus for the idea that there had been a hiatus in the sea-going activities of CP speakers arose from the observations (i) that no word for ‘fish’ as a generic category is reconstructable in PCP, (ii) that there are no clear CP reflexes of POC *ikan/PPT *iqan ‘fish’, and (iii) that there is a cognate set in CP languages, some of whose members mean ‘fish’ and others ‘wallaby’. However, the idea that these changes resulted from a cessation of fishing is directly contradicted by the large number of terms for individual fish species in section 4.2.1, some of which have so clearly undergone CP sound changes that they must be directly inherited. For example, the reflexes of PCP *vai ‘Spanish mackerel, Scomberomorus spp.’ from POC *walu, and PCP *rae ‘k.o. mackerel or large-scaled tuna, Rastrelliger sp.’ from POC *jala(la) clearly reflect the distinctive changes which POC *l underwent in PCP.

Instead, reflexes of PPT *iqan perhaps disappeared for language-internal reasons. The expected PCP form for ‘fish’ is **iya, which in all languages except Sinagoro, Keapara and Motu would become **ia or **[ya]. This phonological attrition (together with the fact that PCP *ia is the third person singular pronoun) may explain why PCP **iya was replaced independently in all CP languages. Circumstantial evidence for this explanation is supplied by the fate of PPT *iqan in non-CP languages. In most of these languages attrition is prevented by retention of the final *-n and addition of *-a (e.g. Gumawana, Dobu, Are, Tawala iana, Bwaidoka igana). However, in Nimoa and Sudest, PPT final consonants are regularly lost, and it is precisely in these languages, where the expected reflex is **ia, that replacement has occurred: Nimoa has yarugi (which may be a compound *ia-rugi rather than a replacement) and Sudest bwarogi. In the Suauic network, *-i, rather than *-a, is added after a final consonant, giving Proto Suauic *ihani. In some dialects, however, *-n- is deleted before *-i, resulting in *ihai, reflected in Tubetube ie. In Daui, however, where a similar attrition is expected, it has been replaced by moya. There is thus some evidence that attrited forms are liable to be replaced.

There is evidence that PCP *iya did occur, at least in compounds. The cognate set listed under POC *taRat ‘unicornfish, Naso spp.’ in section 4.2.1 includes Gumawana ia-tala ‘short snouted unicorn fish, Naso brevirostris’, reflecting PPT *iqan-tarat (i.e. a compound of **iqan ‘fish’ and tarat ‘unicorn fish’). We would expect a PCP reflex **iya-tala, but what we actually find is a metathesised form *iya-lata, which has the literal meaning ‘long fish’.

The words which have replaced PCP *iya in CP languages are:

- Magori: orebe
- Ouma: orabe
- Taboro: beki
- Balawaia: mayani
- Maopa: mayani
- Hula: mani
- Motu: g*arume
- Lala: sisi ‘fish, meat’
- Doura: sisi-ni-vei
- Gabadi: vea
- Roro: maia
- Kuni: moke
- E. Mekeo: ma?a
- W. Mekeo: maka
I do not know the origin of most of these forms. However, Balawaia, Maopa *mayani*, Hula *mani* reflect CP *mayani* ‘wallaby, *Macropus agilis*’. The change in meaning is starkly reflected within the Sinagoro dialect network, where *mayani* means ‘fish’ in the coastal Balawaia dialect, but ‘wallaby’ in inland Taboro. That ‘wallaby’ was the CP meaning is indicated by the distribution of other reflexes meaning ‘wallaby’: Magori *magan*, Motu *mayani*, Mekeo *mani*. The switch in meaning to ‘fish’ is probably explained as follows. The wallaby is the main source of land-based protein, and the etymon consequently acquired the extended meaning ‘protein food’;26 which included fish. When fish became a community’s main protein food, the meaning narrowed to denote only sea-based protein. This explanation is in keeping with evidence that the Sinagoro and Keapara have been under pressure from inland (non-Austronesian) neighbours which has pushed some groups towards the sea, and pushed the Hula right off the land.27

Lala *sisi* and Doura *sisi-ni-vei* have a similar explanation: both are reflexes of PPT *jiji* ‘flesh, protein food’, and have undergone a narrowing of meaning. Doura *sisi-ni-vei* means ‘protein food of water’, and contains a reflex of the POC *ni*, the preposition whose function is to connect an attributive noun to its head noun (Hooper 1985), as it does here.

Although there was evidently no hiatus in CP maritime activities, it is perhaps significant that a majority of the loans I have identified are associated with the sea and with maritime activities:28

*damena* ‘salt’ (also directly inherited CP *rama*)
*dono* ‘k.o. rock cod, coral trout, groper, *Epinephelinae* spp.’
*kalava* ‘k.o. fish’
*kanaye* ‘tern’ (also directly inherited CP *yanawe*)
*kau*, *kauli* ‘fish-hook’
*kimai* ‘shell fish-hook’
*kulig(a,i)* ‘rudder, steering paddle, steer’ (also directly inherited CP *guri*)
*kwayava*, *kaibo* ‘shark’
*lima* ‘bailer’
*nute* ‘squid’
*rawala* ‘sea’ (also directly inherited CP *rawa*)
*ria’i* ‘salt’
*rogo* ‘anchor’
*tabal(e,a)* ‘reef’
*tavuru* ‘k.o. fish’ (also directly inherited CP *ravulu*)
*(y)ulita* ‘octopus’

26 It is possible, as Ross Clark suggested at the Symposium, that CP *mayani* contains the CP root *yani* ‘eat’, and that the basic meaning of *mayani* was ‘protein food’. If so, its history parallels the early history of PAN *Si-kan* ‘fish’ (POC *ikan*), which is the instrumental form of the verb *kaan* ‘eat’ (Zorc, this volume).

27 There is broad agreement that CP speakers, many of whom depended at European contact on the sea for their livelihood, had earlier practised agriculture on the hinterland, and were then pushed back to the coast by the expansion of non-Austronesian speakers from inland. Ilagi (1975) and Rageau (1976) report a Keapara history to this effect; Allen (1977b) and Bulmer (1971, 1979) report evidence that Austronesian speakers once occupied an area stretching inland from what is now Port Moresby.

28 I have excluded the Hula reflexes of PPT *qai-war(a)* ‘boat pole’ and *qai-poli* ‘k.o. canoe’ as they appear phonologically to represent a much more recent stratum of loans.
Loans associated with the land are:

*diyara ‘fat, coconut oil’ (also directly inherited PCP *diya)
*kaye ‘male (green) Eclectus parrot’
*kokokoko ‘cassowary’ (also directly inherited PCP *guya-g(uy)a)
*kulu ‘grass’
*leta ‘nit’
pune ‘pigeon’
yunu ‘breadfruit’
vatila ‘k.o. pandanus’

If we compare the proportion of maritime loans to terrestrial loans with the proportion between the directly inherited items in sections 4.2 and 4.3, then we see that the loans are biased towards items associated with the sea. Thus although there was no hiatus in CP maritime activities (indicated by the fact that a number of loans co-exist with a directly inherited reflex of the same PPT etymon), it does appear that the intruders who brought the loan words had an impact on their CP cousins in domains which had to do with the sea.

It also seems that loans can sometimes be quite arbitrary. Why was *leta ‘nit’ borrowed, when PCP inherited the term *yutu ‘louse’ (section 4.3.1)?

I list below reconstructions of directly inherited etyma associated with the sea (section 4.2) and with the land (section 4.3), together with supporting data. Where a comment is required, it follows the etymon to which it refers. Whilst we can be reasonably certain that the items listed above are loans, it is worth bearing in mind that some of the items listed below as directly inherited are probably also loans. This applies (as we saw in the case of PCP **yulita ‘octopus’) especially where a putative protoform consists of segments which are not subject to significant sound changes.

The study of these terms provides a few hints about CP culture history.

Three terms reconstructed in section 4.3.2, namely PCP *baleyo ‘sago’, *mavo ‘long yam’ and *uve ‘seed yam’, derived respectively from PPT *bareqo ‘breadfruit’, *mavo ‘taro’ and *uve ‘taro tops for planting’, entail a shift in meaning from one food plant to another. We cannot be certain of the meaning of PCP *baleyo (‘sago starch’?), as its reflexes occur only in West CP languages and PCP *labia denotes the sago palm. However, PCP *mavo seems to have completely displaced PPT *quvi ‘long yam’ (POC *qupi), and possibly indicates that CP culture did not include taro (and the use of a borrowed form *yunu for breadfruit may indicate that it did not include this protein source either). Interestingly, Motu talo ‘taro’ is one of only three known Western Oceanic reflexes of POC *talo(s) ‘taro’, and is probably a borrowing either from an Eastern Oceanic language or from English (or an English-based pidgin).

One curious loss is PPT *vudi ‘banana’ (< POC *pudi), since the banana is a major food crop in the CP area. However, the terms which have replaced it appear to be directly inherited, and suggest that there was probably continuity of cultivation: NWCP languages use reflexes of PCP *toyo(ina) ‘k.o. banana’ (< PPT *tawai), and Motu dui ‘banana plant’ reflects PCP *dui ‘banana shoot, plant’ (< POC *(s)i)ulu(q) ‘banana or taro sucker’).

Another intriguing loss is PPT *waga ‘large sailing canoe’ (< POC *waga). Motu has three canoe terms: layatoi is a large sailing vessel made by lashing together three or more hulls, vanayi is a small outrigger canoe, and asi (from PPT *kati, POC *kati(R)) is a medium-sized outrigger canoe. The etymologies of layatoi and vanayi are unknown,
although layatoi contains toi ‘three’, presumably denoting its three hulls. Did PCP speakers lose from their technology the *waga, and only later acquire the layatoi? It is possible that the loss of PPT *saman ‘outrigger float’ (< POC *saman) occurred in this context, that is, that it was a part of the *waga, rather than of the *kati (whose outrigger was called *sarima(n) in PPT). If the inference that PCP culture entailed a simplification of canoe technology is correct, then another fact can also be accounted for. The first is that PPT *laya ‘sail’ (POC *layaR) has only one CP reflex, namely Motu lara (for expected **lala). There is no obvious source of borrowing, and medial -r- could be attributed to dissimilation, but this is not a regular process in Motu. Other CP languages have no cognates. Instead, we find Keapara, Motu palai, Gabadi, Roro parai, borrowed via the lingua franca Police Motu from English ‘(canvas) ffly’. This is accounted for, however, if the PPT *laya was a part of the lost *waga, and Motu lara a more recent loan.

4.2 DIRECTLY INHERITED ETYMA ASSOCIATED WITH THE SEA

4.2.1 MARINE FAUNA

POC *qasap ‘gill’ (Dempwolff 1938)

PPT *qasa (no non-CP reflexes found)

PCP *ara-

WCP: Motu lada-

POC *qunap ‘fishscale’ (Dempwolff 1938)

PPT *qunav

DD: Duau kunaha

AT: Tawala wenawa

BM: Diodio kwana

PCP *yuna-

SK: Hula yuna-

WCP: Motu una-

NWCP: Lala una-, Roro una-, Kuni una-, E. Mekeo una- ‘(fish) eyeball’; N.W. Mekeo una-

PCP *yunav(i) ‘scale (fish)’

SK: Maopa unav(i), Hula yunav(e-)

PPT *tu[i]riqa(-) ‘bone, fish bone’

AT: Maisin turi, Are sirike, Wagawaga sili?e-, Boianaki tuyiri- (metathesis), Gapapaiwa tuiri- (metathesis)

KAK: Kakabai sili?e-, Dawawa turiga

PCP *tu[i]liya-

OM: Magori tiria

SK: Hula iliya-, Balawaia turiya-, Taboro turiga- ‘fishscale’

WCP: Motu turiya-, Gabadi kuriya-

NWCP: Lala kulia-, Roro hulia-, Kuni kulia-, E. Mekeo unia-

The POC term for ‘bone’ was *tuqan, which is apparently derived from PMP *tuqalan (via *tuqlan, then cluster reduction). This is reflected as PPT *tuqa-, PCP *tuya-, but the
latter has only one known reflex, Ouma tuʔa. The term PPT *t[u,i]riqa(-) ‘bone, fish bone’ seems to have competed with *tuqa-, and almost entirely displaced it in early CP. It seems to be derived from PWO *tu(r,R)i ‘sew’, and I take it that *t[u,i]riqa originally meant ‘needle’, and, since needles were made from bone, became generalised to ‘bone’. The formal similarity of PWO *tu(r,R)i ‘sew’ to POC *suri ‘sew’ and PMP/POC *suRi ‘bone’ may well have abetted this development.

POC *biRa(s) ‘roe, fish eggs’ (Blust 1980a:54)
PPT *biRa(s)

AT: Keherara bile-
PCP *bila
SK: Hula pila
WCP: Motu bila ‘fish spawn’

POC *bakewa ‘shark’
PPT *baqewa

AT: Wedau vayewa
DD: Duau baewa
SUA: Sariba baewa
KL: Misima baewa

PCP *bayewa
SK: Balawaia bayewa, Hula paewa, Maopa pawa
OM: Ouma baea

This etymon co-existed with loans derived from POC *karawa (section 3.2.2).

PMP *maqiwa(ŋ) ‘shark’
POC *maqiwa(ŋ)

SES: To’ambaita mageo ‘shark’

29 Reflexes of PWO *tuqan ‘bone’ include:
   WLZ: Bola tuya, Nakanai tua ‘bone; rib’
   NI: Tigak tuan
   NWS: Taiof tuan(a), Torau tua
   PPT *tuqa-
   BM: Bwaidoka tuya
   DD: Sewa Bay tua-tua-
   SUA: Tubetube tua-tua-
   KL: Misima tůwatůwa

30 Reflexes of PWO *tu(r,R)i ‘sew’ include:
   BV: Vitu turi
   Bel: Dami tiri
   MKM: Wampur -rur
   PPT *turi
   SUA: Daui (ha)tuli ‘weave (= cause to thread)’
   PCP *tulį ‘sew’
   OM: Magori turi
   SK: Hula uli, Balawaia tuli
   WCP: Motu turi, Gabadi kuri
   NWCP: Lala kuli, Kuni kuli

31 The PMP reconstruction is made on the basis of the Oceanic evidence here and of reflexes in four Sulawesi languages, Gorontalo muŋgiyan, Buginese maŋiwiŋ, Wolio maŋiwa, Konjo maŋihaŋ, all ‘shark’ (Tryon, ed. 1994).
PPN *maqoo ‘shark’ (Hooper, this volume)

PPT *maqiba(ŋ) (no non-CP reflexes known)

PCP *maaqawa

WCP: Motu maqoa ‘k.o. suckerfish, Phtheirichthys lineatus, Echeneis naucrates, Remora remora’

It is not clear how this etymon differed in meaning from POC *bakewa and POC *karawa.

POC *(riuŋ, ruiŋ) ‘dugong’ (Dempwolff 1938; Blust 1978a)32

NGO: Gitua rui

SWNB: Psohoh dioŋ

Bel: Takia rui

NI: Tiang iuŋ

PPT *ruŋ

BM: Yamalele luiga

PCP *lui

OM: Magori rui

SK: Maopa rui

WCP: Motu rui

PMP *taRaqan ‘squirreelfish, Holocentrus spp.’ (Blust 1983-84a)

POC *taRaqan

WLZ: Nakanai talaha ‘k.o. fish’ (Geraghty 1990)

PPN *taʔa ‘Holocentrus sp., probably armoured soldierfish, Holocentrus spinifer’

(Hooper, this volume)

PPT *taraqan

GUM: Gumawana tayawana

PCP *tala(ya)

WCP: Motu tara ‘violet squirreelfish, Holocentrus violaceus’

POC *kuru(ru) ‘squirreelfish, Holocentrus and Myripristis spp.’

Bel: Gedagedulu ‘crimson squirreelfish, Myripristis murdjan’

PPN *kuru ‘squirreelfish, Myripristis sp.’ (Hooper, this volume)

PPT *kuru(ru)

BM: Iduna kululu(bawe) ‘k.o. fish’ [bawe ‘pig’]

PCP *kulu(lu)

SK: Hula kulu(kani) ‘nannygai, Centroberyx affinis’

32 Dempwolff (1938) reconstructed PMP *duyuŋ. Since PMP *uy usually becomes Proto Eastern Malayo-Polynesian (PEMP) and POC *i, the expected PEMP/POC form is *riuŋ. However, forms reflecting PEMP/POC *ruŋ also occur (see Blust 1978b for PEMP; the Psohoh and Tiang reflexes here). It is debatable whether these are due to metathesis, or whether PMP *uy is retained word-medially, giving PEMP/POC *ruŋ.
WCP: Motu *kururu* 'squirrelfish, *Holocentrus, Ostichthys and Myripristis* spp.'
(Oram, pers.comm.)

POC *qono* 'k.o. barracuda, sea-pike'

SES: To‘ombaita *ono* ‘slender sea-pike, *Sphyraena jello*’; Arosi *ono*


PPN *?ono* ‘barracuda, *Sphyraena* spp.’ (Hooper, this volume)

PPT *qono* (no non-CP reflexes known)

PCP *(y)ono* ‘k.o. fish’

WCP: Motu *ono* ‘barracuda, *Sphyraenella chrysotaenia*’ (Oram, pers.comm.)

NWCP: Lala *ono* ‘k.o. fish’

POC *walu* ‘Spanish mackerel, *Scomberomorus* spp.’

FIJ: E. Fijian *walu* ‘Spanish mackerel, *Scomberomorus commersoni*’

PPN *walu* ‘*Scombridae*’ (Hooper, this volume)

PPT *walu* (no non-CP reflexes known)

PCP *vai*

WCP: Motu *vai-na-vai-na* ‘Spanish mackerel, *Scomberomorus* spp.’

POC *jala(la)* ‘k.o. mackerel or large-scaled tuna, *Rastrelliger* sp.’

HG: Kela (i)*zala* ‘Spanish mackerel, *Scomberomorus commersoni*’

SES: *Are‘are talala* ‘k.o. fish’

NCV: Nguna *salala* ‘k.o. fish’; Uripiv *jelel* ‘k.o. mackerel’

FIJ: E. Fijian *salala* ‘k.o. mackerel, *Rastrelliger kanagurta*’

PPT *jala(la)* (no non-CP reflexes known)

PCP *rae*

SK: Balawaia *dae* ‘a reef fish’

WCP: Motu *dae* ‘k.o. mackerel, *Scomber or Rastrelliger* spp.’

NWCP: Roro *rae* ‘k.o. fish’

POC *lasi* ‘leatherskin, *Chorinemus* spp.’

MIC: Kiribati *nari* ‘leatherskin, *Chorinemus* spp.’

FIJ: E. Fijian *lai* ‘k.o. river fish’

PPN *lai* ‘slender leatherskin, *Chorinemus tol*’ (Hooper, this volume)

PPT *lasi* (no non-CP reflexes known)

PCP *yari*

SK: Balawaia *ari* ‘k.o. reef fish’

WCP: Motu *ladi* ‘leatherskin, *Chorinemus* spp.’

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33 Blust (1989a:133) reconstructs PMP *daRi* from Chamorro *hagi* ‘a fish: *Scomberoides santi-petri* (family *Carangidae*); pompano or jack trevally’ and from the Polynesian data. I am unable to reconcile this with the reconstruction I have made here.
POC *tasiwa ‘Lutjanus sp.’
FIJ: Rotuman sasiva ‘black spot snapper, Lutjanus monostignus’
PPN *ta’iwa ‘black spot snapper, Lutjanus monostignus’ (Hooper, this volume)

PPT *tasiwa (no non-CP reflexes known)
PCP *tariwa
WCP: Motu tdiva ‘paddle-tail, Lutjanus gibbus’

POC *sabutu ‘k.o. fish, Acanthopagrus, Lutjanus or Lethrinus sp.’
FIJ: W. Fijian δābutu ‘Lutjanus and Lethrinus spp.’
PPN *sa(a)putu ‘Lutjanus sp.’ (Hooper, this volume)

PPT *sabutu (no non-CP reflexes known)
PCP *rabutu
SK: Balawaia rabutu ‘a reef fish’
WCP: Motu dabutu ‘black bream, Acanthopagrus berds’
NWCP: Roro tapuso ‘k.o. small, orange fish’

POC *kasika ‘Lethrinus sp.’
SES: Kahua (S. Ana) xasisa ‘Lethrinus elongatus’
MIC: Mokilese katek, Satawalese yātik, Carolinian atix ‘large Lethrinus sp.’

PPT *qasiqa (no non-CP reflexes known)
PCP *yariya
SK: Balawaia ari ‘a reef fish’
WCP: Motu adia ‘snapper, Aprion virescens; emperor, Lethrinella microdon’

POC *tiqau ‘goatfish, Mullidae sp.’ (Blust 1980a)
Bel: Gedaged tik ‘k.o. goatfish, Upeneus sp.’
NCV: Mota tio ‘k.o. fish with barbules’
MIC: Mokilese je ‘k.o. goatfish’

PPN *tikawa ‘fish sp.’ (Hooper, this volume)
PN: Tokelauan tikava ‘k.o. goatfish, Mulloidichthys sp.’

PPT *ti(q)law
GUM: Gumawana siwo-siwo ‘goatfish’
AT: Are siwa ‘fish’

PCP *ti(y)o
WCP: Motu sio ‘goatfish, Parupeneus sp.’
NWCP: Lala si?o, Roro sio ‘k.o. fish’

34 The expected reflex of PMP *tiqau is POC *tiqo. This may mean that the POC form is an early loan from a non-Oceanic language, or that the PMP form was *tiqau. PPN *tikawa must (on phonological grounds) be a borrowing, but the meaning of the Tokelauan reflex indicates that it still referred to goatfish.
CENTRAL PAPUAN CULTURE HISTORY: SOME LEXICAL EVIDENCE

POC *mamin ‘k.o. wrasse, Labridae spp.’ (Blust 1986)
PPT *mamin
   GUM: Gumawana mamina

PCP *mami
   WCP: Motu mami

POC *wawa ‘moorish idol, Zanclus canescens’
   HG: Bukawa i-\textit{mamba}?
   NCV: Lewo \textit{ma-vava}

PPT *wawa (no non-CP reflexes known)
PCP *wawa
   WCP: Motu \textit{vava(bada)}

PMP *qumay ‘unicorn fish, \textit{Naso unicornis}’ (Blust 1983-84a)
POC *\textit{qume}
   PPN *\textit{ume} (Hooper, this volume)

PPT *\textit{qume} (no non-CP reflexes known)
PCP *\textit{yume}
   SK: Hula \textit{yume}

PMP *ta\textit{Rat} ‘unicornfish, \textit{Naso} spp.’\footnote{The PMP reconstruction is inferred from the Oceanic evidence and from Chamorro \textit{tataga} ‘unicornfish, \textit{Naso unicornis}’ (I owe the comparison to Geraghty 1990). Hooper reconstructs PNP *\textit{ta(a)tifi} ‘unicorn fish, \textit{Naso} spp.’. This is evidently derived from PPN *\textit{taa (< POC *\textit{taRat} ‘unicorn fish’) and PPN *\textit{tifi ‘tip, point, extremity’, and so PNP *\textit{taatifi} may be reconstructed, since *(a) is disambiguated by the non-Polynesian evidence. The PNP addition of *\textit{tifi} evidently occurred because reflexes of PPN *\textit{taa ‘unicorn fish’ would otherwise have become homophonous with those of PPN *\textit{taqa ‘armoured soldierfish, Holocentrus spinifer’ (POLLEX)}.}}

POC *\textit{taRat}

   FIJ: E. Fijian \textit{tä}
   PNP: *\textit{ta(a)tifi} (Hooper, this volume)

PPT *(\textit{iqan})\textit{tarat}
   GUM: Gumawana (\textit{i\texttildetilde{a}tala} ‘short-snouted unicorn fish, \textit{Naso brevirostris}’

PCP *(\textit{iya})\textit{tala} (unattested), (\textit{iya})\textit{lata}

PWCP *(\textit{iya})\textit{lata}
   WCP: Motu (\textit{ia})\textit{lata} ‘unicornfish, \textit{Naso unicornis}’
   NWCP: Lala (\textit{i\texttildetilde{a})laka} ‘k.o. fish’

(See discussion in section 4.1.)

POC *\textit{ñopuq} ‘stonefish, Sysanceja spp.’ (Blust 1984c)

PPT *\textit{ñovu(q)}
   KL: Sudest \textit{ño}
PCP *novu
WCP: Motu nohu 'estuarine stonefish, Sysanceja trachynis'
NWCP: Roro nobu

POC *baru 'k.o. triggerfish, Balistidae spp.'
SES: Longgu balu-balu, To'ambaita babalu, Arosi (bubu) barubaru 'k.o.
triggerfish, Balistoides viridescens'

PPT *baru (no non-CP reflexes known)
PCP *balu
SK: Balawaia balu 'big-spotted triggerfish, Balistes conspicillum'
WCP: Motu baru-baru
NWCP: Lala balu-balu, Roro paru-paru 'k.o. fish'

POC *qudu 'k.o. fish'
PPN *?utu 'grey jobfish, Aprion virescens'

PPT *qudu (no non-CP reflexes known)
PCP *yudu 'pufferfish, Gasterophysus sp.'
SK: Balawaia yuru 'pufferfish, Gasterophysus sp.'
WCP: Motu yudu 'giant toadfish, Gasterophysus sceleratus'; Motu yudu(gini) 'k.o.
porcupinefish, Diodontidae spp.'
NWCP: Lala utu 'k.o. fish'; Roro ?uku 'pufferfish, Gasterophysus sp.'

PMP *sumu() 'triggerfish, Balistidae (generic name)'
POC *sumu()
VTZ: Tami sum 'k.o. triggerfish, Pseudobalistes flavimarginatus'
NCV: Mota sumu(t) 'k.o. fish'
FIJ: E. Fijian ðumu 'k.o. triggerfish, Balistes sp.'
PPN *sumu (Hooper, this volume)

PPT *sumu (no non-CP reflexes known)
PCP *rumu
WCP: Motu dumu 'k.o. triggerfish, Rhinecanthus spp.'

POC *buna 'k.o. pelagic fish' (Blust 1980a)
ADM: Aua puna 'k.o. fish, Tok Pisin plangpis'; Seimat pun 'large flat white pelagic
fish'

PPT *buna (no non-CP reflexes found)
PCP *buna
WCP: Motu buna 'k.o. fish'

POC *ga(t,d)a 'k.o. fish'
PPN *kata 'k.o. trevally, Caranx sp., or growth stage of Caranx'

36 The PMP reconstruction is made on the basis of the Oceanic evidence here and of Belau tug? 'triggerfish'
(I owe the comparison to Geraghty, this volume).
PPT *g(w)a(t,d)a
   KL: Sudest ga-gata ‘k.o. fish’

PCP *gwa(t,d)a
   SK: Balawaia ywata ‘k.o. reef fish’
   WCP: Motu gwada ‘k.o. fish’

Trevally are reef fish, so the Balawaia gloss is consistent. The Motu form has -d- where **-t- is expected.

PPT *(q,k)Warawa ‘k.o. emperor, probably Lethrinus or Lethrinella sp.’
   GUM: Gumawana golao ‘striped emperor, probably Lethrinus or Lethrinella sp.’
   BM: Iduna kolao ‘red-mouthed emperor, probably Lethrinus or Lethrinella sp.’
   KL: Misima alawa ‘large fish with blue and yellow-green stripes’

PCP *yorawa ‘k.o. fish’
   SK: Balawaia yorowa ‘k.o. reef fish’; Hula rawa ‘k.o. blue fish’
   NWCP: Roro oroba ‘k.o. fish’

POC *quran ‘prawns and crayfish’ (Dempwolff 1938)

PPT *quran
   BM: Bwaidoka uloya ‘crayfish’
   DD: Dobu ula(ba? )a ‘crayfish’
   AT: Tawala ule(tam) ‘crayfish’
   KL: Nimoa hue(bohe) ‘crayfish’

PCP *(γ)ula
   WCP: Motu ura ‘crayfish’

PMP *(k, q)umajan ‘hermit crab’ (Blust 1980a)

POC *(g,q)umwan

PWO *gumwan
   Bel: Takia gum
   MM: Tabar guma

PPT *guman
   BM: Molima gumana
   AT: Gapapaiwa gumaya, Tawala guma-guma ‘hermit crab bait’
   DD: Dobu guman
   KL: Misima gu-guman

PCP *guma ‘hermit crab bait’
   SK: Balawaia yuma ‘bait’
   WCP: Motu guma ‘bait’

POC *kobar ‘k.o. (large?) hermit crab’
   NWS: Tinputz kubar ‘hermit crab’
   SES: Bughotu koba, Tolo ko-koba ‘hermit crab’
   FIJ: W. Fijian koba-koba ‘large red crab, found on reef flat’
PPT *kobar
AT: Meniafia *kabara 'crabs', Gapapaiwa *kapari (gumayag) 'large hermit crab'
KL: Misima *kovál 'k.o. crab'

PCP *koba
WCP: Motu *ko-koba 'crab'

POC *tubara 'large land crab (generic)' (Geraghty 1990)
MM: Tolai *tubara 'land-crab'
SES: 'Are'are *opara 'a crab'; Arosi *toba 'species of land crab'
FIJ: Rotuman *fupa 'land crab'; W. Fijian *tubá 'generic for several species of land crab'
PN: E. Futunan *tupa 'k.o. crab'

PPT *(t,d)ubara (no non-CP reflexes known)

PCP *dubala 'k.o. land crab'
SK: Hula *ropalo 'swamp crab'
WCP: Motu *dubara 'k.o. land crab'
NWCP: Lala *tubala 'k.o. crab'; Roro *kopara 'crab'

PMP *tiRem 'oyster' (Dempwolff 1938)

POC *tiRom

PPT *tiRom

SUA: Sariba *siloma 'oyster'

PCP *tiRo 'species of shellfish'

POC *(t,R)as 'mother-of-pearl (?)'
BM: Iduna *yalayo 'k.o. fish'

PCP *yalo 'k.o. shellfish'
SK: Hula *alo 'shell necklace'
NWCP: Roro *aro 'k.o. shellfish'

PWO *ka(r,R)as 'mother-of-pearl (?)'
MM: Tabar *ara 'pearlshell, oyster'; Madak *kalas 'pearlshell'
SES: Arosi *gara 'to cut out from shell, e.g. nautilus for inlaying'

PPT *(y)ala
SK: Hula *ala 'species of shellfish'
POC *sela(n) ‘sea urchin with long black spines, possibly Diadema setosa’ (Pawley, forthcoming)

PPT *salan

GUM: Gumawana sanana ‘sea urchin’
AT: Tawala hanana ‘black sea urchin’
KL: Kilivila sanana ‘sea urchin’

PCP *raya

WCP: Motu dala ‘sea urchin’

POC *poñuq ‘turtle’ (Dempwolf 1938)

PPT *vønq

AT: Wedau vonu
BM: Iduna wonu
DD: Duau wonu
KL: Kilivila wonu
SUA: Sariba wonu

PCP *vønq

NWCP: Roro bonu

PPT *qøy-qøy ‘turtle’

BM: Iduna gayo-gayo

PCP *yøo-yøo

SK: Balawaia yao-yao, Maopa yao-yao, Hula ao-ao

4.2.2 FEATURES OF THE COAST AND OCEAN

(See also POC *qone ‘sand, beach’, PCP *kone listed in section 3.2.2.)

POC *laje ‘k.o. coral’ (Milke 1965, 1968)

PPT *laje

KL: Sudest laje ‘coral’

PCP *laje

WCP: Motu lade ‘coral’

POC *gi(r,R)i-gi(r,R)i ‘k.o. coral, coral rubble (?)’

NGO: Lusi gir-giri ‘variegated’
FIJ: E. Fijian gere-gere ‘gravel’

PPN *kili-kili ‘gravel, usually coral rubble’


37 The authors of the POLLEX file suggest that the Polynesian reflexes are derived from POC *kiri ‘rasp, grind’.
PPT *giri* 'coral'
BM: Iduna *gili-gili* 'coral'
DD: Dobu *gili-gili* 'coral broken'; Dobu *gili* 'coral'
SUA: Dauil *gili* 'coral'

PCP *gili* 'k.o. coral'
WCP: Motu *giri-giri* 'coral'

POC *kalagam* 'seaweed' (Pawley, forthcoming)

PPT *qalagwam*
BM: Molima *kaJagoma* 'k.o. seaweed'
AT: Ubir *ka-ka ru ku m* 'seaweed'; Tawala *yalegwama* 'k.o. seaweed, brown'

POC *(y)ayaga*
WCP: Motu *alaga* 'seaweed like grass'

POC *qaRus* 'current' (Dempwolff 1938)

PPT *qarus*
AT: Are *karu*(vei) 'carried by current'
DD: Duau *kalusa*
SUA: Tubetube *kalusi*
KL: Misima *alui*

PCP *(y)alu* 'current'
OM: Ouma *aru-aru*, Magori *aru-aru*(ipia)
SK: Hula *alu*
WCP: Motu *aru*
NWCP: Lala *alu*

POC *tasik* 'sea, salt water' (Dempwolff 1938)

PPT *tasiq* 'salt'
BM: Iduna *tagiga* 'salt deposit on skin after bathing in sea'

PCP *tari*
OM: Magori *tari* 'salt'
SK: Hula *ari* 'tide'
WCP: Motu *tadi* 'sea water'

POC *malino* 'calm' (Grace 1969)

PPT *malino*
KL: Misima *mainu(m)* 'calm'

PCP *maino* 'calm'
SK: Balawaia *maino*, Maopa *maino*
WCP: Gabadi *maino*
NWCP: Lala *maino*
POC \*Ruap 'tidal flow' (Milke 1968)
VTZ: Malasanga rua, Lukep lu 'water flow'
MM: Tolai ruap 'breakers, breaking waves'
SES: Gela lua, Lau lua 'tide (flow) in; high tide'
FIJ: E. Fijian u'a 'tide, wave'
PPT \*ruav 'current'
DD: Dobu (ma)lo-lo, Sewa Bay (ma)lo-lo

PCP \*la-loa 'current'
WCP: Motu ra-roa 'flood, tidal flow'
NWCP: Roro ra-roa

POC \*(kg)opu 'pond, lagoon'
NWS: Solos kopu-kopu, Teop hohua, Nduke koyu 'lagoon'
SES: Lau ?ofu, Are'are ohu-ohu(a) 'brackish water'

PCP \*govu 'lagoon, swamp'
SK: Balawaia you 'lake'; Hula kovu 'pond, lake'
WCP: Motu gohu 'lagoon'; Motu kopu-kopu 'swamp, mud'
NWCP: Lala ovu, E. Mekeo (ka)opu 'swamp'; Doura ?ohu, Roro obu 'lagoon, pond';
Kuni obu, E. Mekeo ofu(na) 'pond'

POC \*motu(s) 'island' (Grace 1969)

PPT \*motu
SUA: Tubetube mutu-mutu 'sand'

PCP \*motu-motu
SK: Balawaia motu-motu, Maopa mou, Hula mou
WCP: Motu motu-motu
NWCP: Lala motu-motu, Doura moku-moku

The Lala form has -t- where **-k- is expected, suggesting that it is a Motu loan.

POC \*sobu 'descend, dive'
FIJ: E. Fijian sobu

PPT \*sobu
BM: Iduna obu
DD: Dobu sobu
AT: Tawala hopu

PCP \*robu 'deep'
SK: Balawaia robu, Hula ropu-ropu
WCP: Motu dobu

PWO \*sosoR 'dry reef, low tide'
BV: Bali zozoro 'coral'
WLZ: Bola roro, Meramera soso 'coral'
PPT \*soso(r) (no non-CP reflexes known)
4.2.3 MARITIME ACTIVITIES AND MARITIME TECHNOLOGY

POC *pagoda 'gather seafood on the reef', *p<in>agoda 'seafood gathered on the reef' (Clark 1991a)

PPT *vagoda 'gather seafood on the reef', *vigoda 'seafood gathered on the reef'

AT: Gapapaiwa vanota 'net prawns'
DD: Dobu igoda 'shellfish'
KL: Kiliivila vigoda 'shellfish'

PCP *vagoda

WCP: Motu haoda 'to fish'

POC *kati(R) 'small canoe or canoe hull' (Dempwolff 1938; Pawley & Pawley, this volume)

SCH: Manam kati

PPT *kati(r) 'outrigger'

AT: Maisin kaasi 'paddle'

PCP *yatı 'canoe, canoe hull'

OM: Ouma ?ahi 'canoe'

SK: Balawaia yasi, Taboro gası, Maopa yai, Hula ai 'canoe'

WCP: Motu asi 'hull of layatoi (large double-hulled canoe)'; Motu asi-asi 'temporary small double canoe'; Gabadi asi 'canoe'

NWCP: Lala asi, Doura asi 'canoe'; Roro ahi 'canoe, hull'

POC *kiato 'outrigger boom' (Milke 1968: *kiado; Ross 1988; Pawley & Pawley, this volume)

PPT *qiato

DD: Dobu kiyas
AT: Are kiato
KL: Kiliivila kiaro

PCP *(y)iado

SK: Aroma iaro

POC *layaR 'sail' (Dempwolff 1938; Pawley & Pawley, this volume)

PPT *laya(r)

GUM: Gumawana naya
AT: Gapapaiwa nala
DD: Dobu naya
BM: Iduna naya
KL: Kiliivila laya
PCP *yaya
WCP: Motu *lara (expected form **lala)

POC *tari ‘steer’
SES: Lau *tari, *Are'are *tari (roro)

PPT *tari
AT: Ubir *tari ‘steer a canoe’
KL: Sudest *tari-tari ‘walk arm in arm because slippery’

PCP *tali
OM: Ouma *tari, *Magori *tari
WCP: Motu *tari ‘steer, rudder’
NWCP: Lala *kadi, Roro *hari ‘rudder’

PPT *sarima(n) ‘outrigger float’
AT: Tawala *harima
DD: Dobu *salima, Duau *salime
SUA: Sariba *salima
KL: Misima *haliman, Nimoa *saima

PCP *ralima
OM: Ouma *ralima
SK: Balawai *dalima, *Maopa *ralima, Hula *ralima-*ralima
WCP: Motu *darima, Gabadi *garima
NWCP: Lala *dalima, Roro *tarima

POC *(l,R)ujan ‘load (cargo)’ (Blust 1976b; Pawley & Pawley, this volume)
PPT *(q)usan
AT: Ubir *boi, *Are *boe, Tawala *woe
DD: Dobu *usa, *usana, Sewa Bay *gusa

PCP *uda ‘load (cargo)’
WCP: Motu *uda-*uda
SK: Taboro *yura-*udi

POC *pose ‘paddle’ (Dempwolff 1938)
PPT *vose
AT: Ubir *boi, *Are *boe, Tawala *woe
BM: Iduna *woi
DD: Duau *wose
SUA: Sariba *wose
KL: Kilivila *wola, Misima (i)wule, Nimoa *vale

PCP *vore
WCP: Motu *hode, Gabadi *ode
NWCP: Roro *bote, E. Mekeo *po*e
PPT *leva ‘paddle’

BM: Molima neva
DD: Dobu nea
SUA: Tubetube nea
KL: Misima leva, Sudest eva

PCP *leva

OM: Magori reva
SK: Taboro rewa, Balawaia leva, Hula leva, Hula leva-leva ‘paddle about in canoe’

POC *pu(w)t ‘seine net’ (Blust 1972c)

NGO: Kove puo ‘fishing net’
VTZ: Maleu (na)pu ‘fishing net’
SCH: Manam vu-vu ‘fishing net’
BV: Bali vuyoto ‘fishing net’
SES: Gela vuyo ‘fishing net’; Arosi hu?o ‘large net, seine net’

PPT *vuo(t)g

GUM: Gumawana uwo(i) ‘net specific fish; net for fishing/trapping turtle’

PCP *vuo(y)o

WCF: Motu huo ‘wallaby net’

POC *bubu ‘fish-trap’ (Dempwolff 1938)

PPT *bubu (no non-CP reflexes known)

PCP *bubu

SK: Taboro bubu ‘fish-trap’

POC *reke ‘pocket of seine net’ (Biggs 1965: Proto Eastern Oceanic *dreke)

BV: Vitu neke ‘fishing net; fish trap’ (expected form **reke)
FIJ: E. Fijian dreke ‘hollow or cavity of a thing’; Rotuman reke ‘pocket of a seine net’
PN: Tongan leke ‘small room or recess’; Rarotongan reke ‘end of a net’

PPT *reke (No non-CP reflexes known)

PCP *leke ‘fishing net’

SK: Balawaia leke ‘fishing net’; Taboro reke ‘fish net’; Hula leke ‘big fishing net’
WCF: Motu reke ‘fine fishing net, seine’; Gabadi re?e ‘fishing net’
NWCP: Roro re?e ‘fishing net’

PPT *kara(y)udi ‘fishing spear’

AT: Meniafia kara(y)ut

PCP *kara(y)udi

OM: Ouma karaudi
SK: Hula karauti ‘many-pointed fish spear’
4.3 DIRECTLY INHERITED ETYMA ASSOCIATED WITH THE LAND

4.3.1 TERRESTRIAL FAUNA

For simplicity’s sake, I have treated all birds as terrestrial fauna. There do not appear to be any bird species listed here which would be unknown to a non-maritime population.

See also POC *kawak ‘dog’, PCP (?) *kwafi:jwa and POC *kusupe ‘rat’ (Grace 1969), PCP *kuruvu (section 3.2.2). The dog was a late (post-Austronesian) arrival in many parts of Papua New Guinea, but evidently was part of the POC assemblage. Although the term for ‘dog’ is clearly a borrowing in many parts of the country (Mark Donohue, pers.comm.), I treat it as a directly inherited term here, because the PT sound correspondences are regular.

POC *joga ‘(pig’s) tusk’ (Ross 1988)

PPT *joga

DD: Dobu dona ‘molar tooth’
BM: Molima dona ‘ornament made from tusks’; Anuki doga ‘(animal) horn’
AT: Meniafia tona ‘(animal) horn’
KL: Muyuw dog ‘(animal) horn’

PCP *do(ŋ)a

POC *boRok ‘domestic pig’ (Dempwolff 1938; Lynch 1991)

PPT *boroq ‘pig’

DD: Sewa Bay bulukwa ‘pig’
BM: Bwaidoka bulukwa ‘pig’
AT: Are poro, Gapapaiwa poro ‘pig’
SUA: Tubetube buluka ‘pig’
KL: Kilivila bunukwa ‘domestic pig’

PCP *bolo ‘pig’

PWCP *bolo(ma) ‘pig’

WCP: Motu boro(ma), Gabadi boro(ma)
NWCP: Lala bolo(ma), Doura boro(ma), Kuni folo(ma)

POC *bwawe ‘pig’ (Grace 1969; Lynch 1991)

SES: Bauro (a)bwo, Faghani bo
NCV: Mota bgoe ‘pig; male pig; any kind of quadruped’; Raga poe

PPT *bwawe

DD: Dobu bawe
GUM: Gumawana bao
BM: Molima bawe, Yamalele bawe
KAK: Kakabai bwawa
SUA: Tubetube bwawa
KL: Muyuw bawe

PCP *bae

SK: Balawaia bae, Taboro bai, Hula pae
PWO *ma(l,r,R)bọgi 'flying fox'
NI: Tiang malabig, Nalik malbug
Bel: Biliau malbog, Megiar malabog
SCH: Manam malabog

PPT *maribogī
AT: Taupota maliboi
SUA: Sariba maliboi

PCP *malibo(ŋ)i
SK: Taboro mariboi
WCP: Motu mariboi, Gabadi manuboi
NWCP: Lala maliboi, Roro manubai 'bat'

PWO *mao(pb)a 'flying fox'
ADM: Tench mavo
NI: Notsi maua, Lamasong mapa, Madak mua

PPT *mao(verb)a (no non-CP cognates found)
PCP *mao(verb)a

OM: Ouma maiba
SK: Hula maopa

PWO *se(r,R)a-se(r,R)a 'sugar glider, Petaurus breviceps'
Bel: Gedaged sale-sale [metathesised vowels]

PPT *sera-sera
BM: Molima sel-sela
KL: Muyuw led-led
AT: Gapapaiwa sura-sura

PCP *ri-lo ri-lo
WCP: Motu dire-dire, (ba)diro-diro [dialect variants]
NWCP: Roro tsir-o tsir-o, E. Mekeo kino-kino

PWO *wakīn 'wallaby'
NI: Konomala uakin, Tolai okin, Label uakin, Siar uakin
VTZ: Mbula wok
Bel: Bilibil we, Gedaged woi
HG: Kaiwa uai-vem

PPT *waqin
BM: Bwaidoka vayi(ta), Yamalele vagi(tau) 'possum'
KL: Kilivīla waila

PCP *wai/i 'wallaby, Macropus agilis'
SK: Hula wayi 'wallaby, Macropus agilis'
WCP: Gabadi vai(aru) 'wallaby, Macropus agilis'
**CENTRAL PAPUAN CULTURE HISTORY: SOME LEXICAL EVIDENCE**

<table>
<thead>
<tr>
<th><strong>POC</strong> <em>mwa</em>j (Ross 1989b)</th>
<th><strong>PPT</strong> <em>mwa</em>j</th>
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<tbody>
<tr>
<td>AT: Maisin <em>masa(ŋ)</em></td>
<td><strong>KL:</strong> Sudest <em>mwaja-mwaja</em></td>
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<thead>
<tr>
<th><strong>PCP</strong> <em>mwa</em>da (Ross 1989b)</th>
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<tbody>
<tr>
<td><strong>SK:</strong> Balawaia <em>mora</em></td>
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<td><strong>WCP:</strong> Motu <em>mada</em>, Gabadi <em>moaga</em></td>
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<td><strong>NWCP:</strong> Lala <em>more?ata</em></td>
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<thead>
<tr>
<th><strong>POC</strong> <em>manuk-manuk</em> (Ross 1989b)</th>
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<tbody>
<tr>
<td><strong>WLZ:</strong> Nakai <em>malu-malu</em> ‘ant, insect’</td>
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<tr>
<td><strong>FIJ:</strong> W. Fijian <em>manu-manu</em> (<em>ni őina</em>) ‘night-flying moths’; W. Fijian <em>manu-manu</em> (<em>ni gwele</em>) ‘animals living in the ground, such as worms, ants, etc.’</td>
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<tr>
<th><strong>PPT</strong> <em>manuk-manuk</em></th>
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<tr>
<td><strong>BM:</strong> Molima <em>manu-manuwa</em> ‘insects’</td>
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<tr>
<th><strong>PCP</strong> <em>manu-manu</em></th>
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<tr>
<td><strong>SK:</strong> Hula <em>manu-manu</em></td>
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<tr>
<td><strong>WCP:</strong> Motu <em>manu-manu</em> ‘insects, neetles’</td>
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<tr>
<th><strong>POC</strong> <em>bebek</em></th>
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<tr>
<td><strong>PPT</strong> <em>bebeq</em></td>
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<tr>
<td><strong>DD:</strong> Dobu <em>pepekwa</em></td>
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<tr>
<td><strong>BM:</strong> Iduna <em>bebewa</em></td>
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<tr>
<td><strong>AT:</strong> Wedau <em>bebeu</em></td>
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<tr>
<td><strong>SUA:</strong> Tubetube <em>bebe</em></td>
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<tr>
<td><strong>KL:</strong> Kilivila <em>beba</em>, Sudest <em>bebi</em></td>
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<tr>
<th><strong>PCP</strong> <em>bebe</em></th>
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<tr>
<td><strong>OM:</strong> Ouma <em>bebe</em>, Magori <em>bebe</em></td>
</tr>
<tr>
<td><strong>SK:</strong> Balawaia (<em>kau</em>)bebe, Hula <em>pepe</em></td>
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<tr>
<td><strong>WCP:</strong> Motu (<em>kau</em>)bebe</td>
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<tr>
<th><strong>PNWCP</strong> <em>bebe(lo)</em></th>
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<tr>
<td><strong>NWCP:</strong> Lala (<em>e</em>)bebe(lo), Roro <em>pe(ro)-pe(ro)</em>, Kuni (<em>lo</em>)fefo, E. Mekeo <em>fefe</em>, W. Mekeo <em>pepe</em></td>
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<tr>
<th><strong>POC</strong> <em>namuk</em> (Dempwolff 1938)</th>
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<tr>
<td><strong>PPT</strong> <em>namuq</em> (Ross 1988:207)</td>
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<tr>
<td><strong>DD:</strong> Dobu <em>nemwa</em></td>
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<tr>
<td><strong>BM:</strong> Molima <em>namo(kili)</em>, Iduna <em>nimoya</em></td>
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<td><strong>AT:</strong> Minavega <em>nimwai</em></td>
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<td><strong>SUA:</strong> Tubetube <em>nimwai</em></td>
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<tr>
<td><strong>KL:</strong> Kilivila <em>nimu</em>, Sudest <em>ňamo-ňamo</em> ‘fruitfly’</td>
</tr>
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</table>
PCP *ñamo
OM: Ouma nemo, Magori nemu
SK: Balawaia nemo, Hula nemo, Hula (tai)namo
WCF: Motu namo

POC *lago 'housefly' (Dempwolff 1938)
PPT *lago (no non-CP reflexes known)
PCP *yago
WCP: Motu lao, Gabadi ao(kama)
NWCP: Doura rao(maka), Roro ao(maha)

POC *qalipan 'centipede' (Dempwolff 1924-25)
PPT *qalivan
DD: Dobu ganihana
SUA: Sariba qalihei

PCP *yaiva
OM: Magori aiwa
SK: Balawaia yaiwa, Maopa yaiva, Hula aiwa
WCP: Motu aiha, Motu-H ariha
NWCP: Kuni aiba, E. Mekeo aipa

POC *kutu 'hair louse' (Dempwolff 1938)
PPT *qutu 'louse'
BM: Iduna ?utu
GUM: Gumawana kutu
AT: Gapapaiwa kutu
KL: Kilivila kutu

PCP *yutu 'louse'
SK: Balawaia yutu, Taboro mutu, Maopa u, Hula yu?u
WCP: Motu utu
NWCP: Lala uku, Doura uku, Roro uhu, Kuni uku, E. Mekeo uu

POC *tuma 'body louse' (Dempwolff 1938)
PPT *tuma
AT: Gapapaiwa tuma 'louse'
DD: Duau tuma 'louse'
SUA: Sariba tuma 'louse'

PCP *tuma
OM: Ouma tuma, Magori tuma

POC *lawa(q) 'spider' (Dempwolff 1938)
PPT *lawa
BM: Iduna nawaya
AT: Gapapaiwa nawaga
KL: Sudest lawa

PCP *yawa-yawa
SK: Maopa (kal)wara-wara
WCP: Motu vala-vala 'spider's web'
NWCP: Roro aw-awa

The Maopa and Motu forms both reflect a metathesis.

POC *ma-nipo, *ni-nipo 'wasp'
Bel: Takia nini
SCH: Manam niniko
ADM: Drehet ninih
SES: Bughotu mañivo, Lengo manivo, Sa'a niniho

PPT *manivo
BM: Iduna manibo 'blue insect (type of mudwasp?)'

PCP *naniyo
SK: Balawaia naniyo, Taboro nanigo
WCP: Motu nanigo
NWCP: Lala nani'o

The PCP form seems to be a conflation of the two POC forms.

POC *punu-punu 'wood-eating creatures'
NWS: Roviana vuvunu 'wood-eating worm'
PPT *(p,w)unu-(p,w)unu (no non-CP reflexes found)

PWCP *wono-wono 'termites'
WCP: Motu vono-vono
NWCP: Roro bonu-bonu, E. Mekeo pono-pono

POC *diwi(r,R) 'k.o. small ant'
NI: Sursurunga diu 'centipede'
MKM: Labu titi(nalo) 'ant'
SES: Arosi diudiu, Bauro siusiu 'k.o. small brown ant'
NCV: Tangoa ririu 'red ant'
PPT *di(v,w)i(r)
DD: Dobu didi(yau-yau) 'ant'
KL: Sudest njivə-njivəra 'k.o. small ant'
AT: Basilaki diwi-diwi 'ants'

PCP *di(vi)
SK: Taboro didi(tima) 'small black ants'
PNGO *\textit{droman}(i) 'leech' (Ross 1988)\textsuperscript{38}

SWNB: Amara \textit{(e)di-dmen}
HG: Mangga Buang \textit{domaŋ}, Mapos Buang \textit{domaŋ}, Kumaru Mumeng \textit{domaŋ}

PPT *\textit{droman}(i)
AT: Gapapaiwa \textit{domeni}, Tawala \textit{domani}
BM: Yamalele \textit{domana}
DD: Dobu \textit{domana}
KL: Nimoa \textit{dome}

PCP *\textit{doma}
SK: Balawaia \textit{roma}, Taboro \textit{doma}, Maopa \textit{roma}
WCP: Motu \textit{dona}
NWCP: Lala \textit{toma}, Roro \textit{koma}

PNGO *(t,d)\textit{imwan} 'worm, maggot'
VTZ: Tami \textit{timoa}
HG: Yabem \textit{(nom)temoa}, Kela \textit{tumwa}, Bukawa \textit{dumbo}, Numbami \textit{(mota)digan(a)}

PPT *\textit{dimwan}
AT: Maisin \textit{riwoo}, Are \textit{dimo(gaga)}, Gapapaiwa \textit{dimo(moga)}
GUM: Gumawana \textit{dimala} 'garfish, \textit{Hemirhamphus} sp.'
BM: Molima \textit{dimwa-mwa}
DD: Dobu \textit{di-dimwana}

PCP *\textit{dimwa}
SK: Balawaia \textit{dimo}, Maopa \textit{rimo-rimo}, Hula \textit{rimo}
NWCP: Kuni \textit{simaa}

PCEMP *\textit{kapatan} 'caterpillar, grub'
CMP: Irarutu \textit{kafatana}

POC *\textit{kapato(n)}
NCV: Mota \textit{vato} 'white grub found in dead trees, eaten'; Raga \textit{avato} 'large white insect found in trees, edible'
FIJ: W. Fijian \textit{yavato} 'wood-boring grubs'
PN: Tongan \textit{?afato} 'k.o. white grub found in timber'; Samoan \textit{?afato} 'large edible grub, found in dry trees'

PPT *\textit{qavato(n)} (no non-CP reflexes found)

PCP *\textit{kavato}
SK: Taboro \textit{kavata} 'caterpillar'

\textsuperscript{38} The New Guinea Oceanic forms for 'leech' appear to be cognate with Eastern Oceanic forms for 'sea anemone':
Proto Eastern Oceanic *\textit{droman}(i,e) 'sea anemone' (Pawley, forthcoming)
NCV: Mota \textit{rumwa}
MIC: Carolinian \textit{rumeś}
FIJ: Rotuman \textit{nunami} 'edible sea anemone', W. Fijian \textit{dromani} 'anemone (generic)'
PN: Samoan \textit{lumane}
POC *m\textsuperscript{w}ata 'snake' (Grace 1969)

PPT *m\textsuperscript{w}ata

AT: Gapapaiwa \textit{mota}
BM: Iduna \textit{mota}, Molima \textit{m\textsuperscript{w}ata}
DD: Dobu \textit{m\textsuperscript{w}ata}
SUA: Sariba \textit{mota}

PCP *(\textit{mota}, \textit{m\textsuperscript{w}ata})

OM: Magori \textit{mota}, Bina \textit{mota}
SK: Balawaia \textit{mota}

POC *puqaya 'crocodile' (Dempwolff 1938)

PPT *\textit{v}uqaya

DD: Dobu \textit{uaya}
BM: Iduna \textit{wayo}(\textit{po})
AT: Ubir \textit{uwayo}, Wedau \textit{iwa\textordmasculine o}, Tawala \textit{mugaya}

PCP *\textit{v}uyaya

OM: Ouma \textit{uagai}, Magori \textit{uae}
SK: Taboro \textit{yuyai}, Hula \textit{vuya}, Maopa \textit{vuara}
WCP: Motu \textit{huala}, Gabadi \textit{qua}
NWCP: Lala \textit{vuala}, Roro \textit{puaea}, Kuni \textit{buaya}, E. Mekeo \textit{ufala}

PPT *b\textsuperscript{w}ab\textsuperscript{w}a(qa) 'k.o. small lizard'

KL: Sudest \textit{b\textsuperscript{w}abo} 'green lizard'

PCP *b\textsuperscript{w}ab\textsuperscript{w}ay\textit{a}

WCP: Motu \textit{vaboa} 'gecko'
NWCP: Lala \textit{obu}\textordmasculine a 'k.o. lizard'; Roro \textit{papa}\textordmasculine a 'lizard'

PWO *pa(r,R)ia 'k.o. large lizard, monitor lizard (?)'

VTZ: Pono \textit{pari} 'k.o. large ground lizard'
SCH: Manam \textit{paria} 'k.o. big lizard'
Bel: Gedaged \textit{paziu} 'k.o. lizard, edible, skin used as drum head; may grow to seven feet long'
NWS: Roviana \textit{vari}(lazu) 'k.o. lizard'

PPT *\textit{v}aria (no non-CP reflexes found)

PCP *\textit{va}\textit{l}ia

CP: Motu \textit{aria} 'lizard (generic), monitor lizard'

PWO *pa(r,R)a 'frog'

Bel: Biliau \textit{far} 'frog (generic)'
NWS: Vangunu \textit{para}(goa) 'large frog'

PCP *pala

OM: Ouma (a)\textit{para-para}
SK: Hula \textit{pala}(keo)
WCP: Motu *para-para
NWCP: Lala *ala(beto) (expected form **pala-)

POC *tuna ‘freshwater eel’ (Dempwolff 1938)

PPT *tuna
AT: Tawala tuna

PCP *tuna ‘eel’
SK: Maopa una
NWCP: Lala kuna

POC *manuk ‘bird’ (Dempwolff 1938)

PPT *manuq
GUM: Gumawana *manuo
DD: Dobu *manua
BM: Iduna *manuya
SUA: Sariba *manu
KL: Kilivila *mauna

PCP *manu
OM: Yoba *manu, Bina *manu
SK: Balawaia *manu, Taboro *manu, Hula *manu, Maopa *manu
WCP: Motu *manu, Gabadi *manu-manu
NWCP: Lala *manu-manu, Doura *manu

POC *panic, *pani- ‘wing’ (Blust 1981d)
VTZ: Kilenge *vani-, Sio *bani-
Bel: Mindiri *bani- ‘wing, shoulder’
SCH: Kairiru *bani-
MKM: Silisili *baic, Sarasira *banit
HG: Hote *banik, Mapos Buang *banis, Kumaru Mumeng *vanis

PPT *(p,v)an(i,e)-
KL: Kilivila *pini-pane-, Sudest *pa-pene-

PCP *van(i,e)-
OM: Magori *vane-
SK: Balawaia *vane-, Hula *vane-
NWCP: Doura *hani-, Roro *bani-, Kuni *bani-, E. Mekeo *pani-, W. Mekeo *bani-

POC *guju-‘beak, snout’ (Ross 1988)

PPT *guju- ‘beak’
KL: Kilivila *kudu

PCP *gudu- ‘beak’
SK: Hula *muru-
WCP: Motu *udu-
NWCP: Roro *isu-
PPT *gubalim 'k.o. pigeon'
   AT: Basilaki gubalim ‘blue pigeon’

PCP *gubai
   OM: Magori gubai ‘pigeon’

POC *binam 'hornbill' (Clark, this volume)
   SES: Bughotu bina, Longgu bina, Lau bina, Kwaio bina, 'Are'are pina

PPT *binam
   DD: Dobu binama
   AT: Tawala binama

PCP *bina
   OM: Magori bina
   SK: Balawaia bina, Taboro bina 'k.o. extinct bird'; Hula pina
   WCP: Motu bina

PWO *bogi 'k.o. hawk or eagle'
   Bel: Biliau boog 'white or brown bird, flies high and dives into the sea to catch fish', Takia bog 'hawk (black or brown)'
   VTZ: Mbula (man)mboog 'eagle'

PPT *bogi (no non-CP reflexes found)

PCP *bogi 'hawk, eagle, kite, hornbill'
   WCP: Motu bogi 'kite'; Motu bogi(bada) 'hawk'
   NWCP: Lala boi(bata) 'k.o. bird'; Roro po?i 'hornbill'; E. Mekeo foi 'eagle'

POC *kamWa(g,q)a 'eagle'
   NWS: Vanghunu kamaga, Sengga kamaga
   SES: Gela (manu)kama, Sa'a (si?o)mWaa 'k.o. eagle'

PPT *kamWaga (no non-CP reflexes found)

PCP *yamo(g,y)a
   SK: Balawaia yamoya, Hula amoa

PPT *boqe 'crane, heron'
   GUM: Gumawana bowe(tuwa) 'k.o. bird, possibly a white crane'
   AT: Tawala boi 'crane'
   KL: Kilivila boi 'grey crane, heron'; Sudest boi 'crane'

PCP *boye 'white heron'
   SK: Taboro boye 'white heron'; Hula poe(rupa) 'white ibis'; Hula poye 'heron'; Hula poye(kulo) 'egret'
   WCP: Motu boe 'pelican'
   NWCP: Lala boe 'white heron'; Roro poe, E. Mekeo foe 'heron'
POC *kala(p,g)a(r,R) ‘male (green) Eclectus parrot’
   NI: Tabar giagar, Patpatar kaagar ‘Eclectus parrot’, Tolai kalagar
   BV: Vitu yalaqa ‘Eclectus parrot’
   SWNB: Amara (a)kalaagar
   Bel: Biliul alaq ‘k.o. parrot’
   ADM: Lou kareg ‘parrot’
   SES: ‘Are’are ara ‘k.o. large green parrot’ (expected form **?ara(k,n)a)

PPT *kalagar
   DD: Dobu kanagala ‘parrot types (red, green, lory)’
   BM: Yamalele ganagala
   AT: Tawala kanagala ‘large green parrot, loriikeet’
   KL: Kilivila karaga, Nimoa helege

PCP *yalaga
   SK: Balawaia yalaga, Hula alaka ‘female loriikeet’
   NWCP: Roro ?aea, E. Mekeo ala?a

POC *sipiri ‘k.o. small parrot’
   NI: Patpatar iiri ‘k.o. parrot’
   ADM: Drehet sihi, Lou sipir ‘parrot-like bird’
   SES: Bughotu siviri ‘red parrot’; ‘Are’are siri ‘red female parrot’; Arosi siri ‘k.o. parrot, Lorius chlorocercus’
   NCV: Raga siviru ‘coconut lory, Trichoglossus haematodus’

PPT *si(v,w)iri (no non-CP cognates found)

PCP *divili
   SK: Balawaia rivili ‘small green parrot’, Taboro riviri
   NWCP: Lala sivili, Roro timiri, E. Mekeo tisipili ‘k.o. parrot, noisy’

PMP *kiu: ‘plover or other wading bird’ (Blust 1980a)

POC *kiu, *kiwi
   NWS: Teop kivi ‘frigate bird’
   PN: Tongan kiu ‘k.o. shore bird, Pluvialis dominica; wader (generic)’; Niuean kiu ‘wader (generic), plover’; Tikopia kiu ‘bristle-thighed curlew, Numenius tahitiensis’; Hawaiian kiwi ‘Scarlet Hawaiian Creeper, Vestiaria coccinea’; Marquesan kivi ‘shore bird which cries “kivi”’

PWO *kiwiwi ‘k.o. bird, sandpiper, Tringoides hypoleucus’
   NI: Tabar kuivi

PPT *kiwiwi
   AT: Are kiivi, Gapapaiwa kiivi(dipa), Tawala kiiviwi
   BM: Bwaidoka kiwiwi
   DD: Dobu kiwiwi
   KL: Nimoa kiwiwi

PCP *kiwiwi
   WCP: Motu kiivi
4.3.2 FLORA

POC *kayu ‘tree’ (Dempwolff 1938)

PPT *kayu

AT: Wedau ai
BM: Anuki kai, Iduna ai
DD: Dobu kaiwe
KL: Kilivila kai

PCP *yau

OM: Ouma ?au
SK: Balawaia yau, Hula au
WCP: Motu au
NWCP: E. Mekeo au

POC *raun ‘leaf’ (Dempwolff 1938)

PPT *rau

AT: Are rau

PCP *lau

SK: Hula lau
WCP: Motu rau
NWCP: Kuni lau

POC *draqan ‘(tree) branch’ (Dempwolff 1938)

PPT *daqa

AT: Boianaki taya-

PCP *daya

SK: Hula ra
WCP: Gabadi ga ‘(branch) fork’
NWCP: E. Mekeo ?a-, W. Mekeo ka-

The reflexes here, descended from POC *draqan, are exceptional, in that most Oceanic reflexes (including some PT reflexes) are descended from POC *raqan.

PWO *tukul ‘tree stump, base’

MM: Tolai tikul ‘tree stump’; Tungak tukul ‘base’

PPT *tuqu ‘tree stump’

AT: Tawala tugu-tugu
KAK: Dawawa tuyu-tuyu(nama)

PCP *tuyu-ka ‘tree stump’

OM: Yoba tutu?a, Bina tutu
SK: Saroa tuyuka
NWCP: Roro hua- ‘tree trunk’; Kuni kua, E. Mekeo ufa, W. Mekeo ua
PPT *b\textsuperscript{w}adi- 'stump, base, reason'
  GUM: Gumawana \textit{pasi}-'reason'
  AT: Boianaki \textit{bori}- '(tree) trunk'

PCP *b\textit{adi}
  WCP: Motu \textit{badi}- 'cause, tree stump'; Gabadi \textit{badi}- 'tree stump'
  NWCP: Doura \textit{bati}-, Kuni \textit{fasi}- 'tree stump'

POC *\textit{Ramut} 'root' (Dempwolff 1926)
PPT *\textit{ramu}
  AT: Gapapaiwa \textit{ram-ram}
  GUM: Gumawana \textit{lam}
  DD: Dobu \textit{lamu}
  SUA: Sariba \textit{lam-lam}
  KL: Kilivila \textit{lamu}

PCP *\textit{lamu}
  OM: Magori \textit{ramu-ramu}
  SK: Balawaia \textit{lamu}, Taboro \textit{ramu}- 'buttress root'; Maopa \textit{lamu-lamu}
  WCP: Gabadi \textit{ramu}
  NWCP: Lala \textit{lamu}, W. Mekeo \textit{namu}

POC *\textit{puaq} 'fruit' (Dempwolff 1938)
PPT *\textit{vua-}
  AT: Gapapaiwa \textit{ua-}, Tawala \textit{ugo-}
  BM: Iduna \textit{ua-}
  DD: Dobu \textit{ua-}
  SUA: Bohutu \textit{fua-}
  KL: Kilivila \textit{ua-}

PCP *\textit{vua-} 'seed'
  SK: Balawaia \textit{uo-}, Maopa \textit{vua-}
  WCP: Motu \textit{hua-hua-}
  NWCP: Doura \textit{hua-}, Kuni \textit{bua-}, E. Mekeo \textit{pua-}, W. Mekeo \textit{bua-}

PWO *\textit{pe(r,R)(a,e)} 'flower'
  WLZ: Meramera \textit{vele-vele}
  NWS: Sengga \textit{ve-vera}

PPT *\textit{vera}
  AT: Ubir \textit{bera-}, Maisin \textit{bera-}, Wedau \textit{bera-}

PCP *\textit{vela}
  WCP: Motu \textit{hera-hera}
  NWCP: Lala \textit{vela}

POC *\textit{ta\textit{lo(s)}} 'taro, Colocasia esculenta (syn. Colocasia antiquorum)' (Ross, forthcoming)
  WCP: Motu \textit{talo}
I have pointed out elsewhere (Ross, forthcoming) that POC *talo(s)* hardly occurs in Western Oceanic. It is possible that Motu talo is a borrowing from an Eastern Oceanic language or from an English-based pidgin.39

POC *mwa*po(q) ‘taro’ (Ross, forthcoming)
PPT *mavo
   KAK: Dawawa *mavu* ‘taro’
PCP *mavo* ‘greater yam, *Dioscorea alata*’
   SK: Balawaia *mao* ‘greater yam, *Dioscorea alata*’
   WCP: Motu *maho* ‘greater yam, *Dioscorea alata*’
   NWCP: Kuni *mabo* ‘greater yam, *Dioscorea alata*’

POC *up(e,a)* ‘taro seedling’ (Ross, forthcoming)
PPT *uve* ‘taro tops for planting’
   AT: Are *ube*, Gapapaiwa *uve*, Tawala *uwe* ‘taro tops for planting’
PCP *uve* ‘seed yam’
   SK: Hula *uve* ‘seed yam’
   WCP: Motu *uhe* ‘the end of yam, kept for planting, any seed for planting’

Note that both PCP *mavo* and PCP *uve* refer to yams, whilst their PPT ancestors referred to taro.

POC *piRaq* ‘giant taro, elephant ear taro, *Alocasia macrorrhiza* (syn. *Alocasia indica*)’ (Blust 1972c)
PPT *viraq* ‘k.o. taro’
   GUM: Gumawana *vilava* ‘taro’
   KL: Kilivila *vilaga* ‘variety of taro’
   BM: Bwaidoka *vilaga* ‘edible root resembling taro’
PCP *vila*
   WCP: Motu *hira* ‘large sp. of edible arum’

POC *(s,j)uli(q)* ‘banana or taro sucker, slip, cutting, shoot (i.e. propagation material)’ (Ross 1988)
PPT *juli(q)*
   DD: Dobu *suli* ‘taro’
   AT: Tawala *huni* ‘taro’
PCP *dui* ‘banana shoot, plant’
   SK: Hula *rui* ‘young banana shoot’
   WCP: Motu *dui* ‘banana plant’
   NWCP: Roro *tsui(ara)* ‘k.o. banana’; Mekeo *ui* ‘domestic banana plant’

39 Hiri Motu, the Motu-based pidgin of Papua, received input from policemen from the Solomon Islands, some of whom presumably spoke a SES language (Dutton 1985). John Lynch (pers.comm.) points out that it may also have copied items from Papuan Pidgin English.
POC *sakup ‘k.o. cooking banana: long with white flesh (presumably *Eumusa* group)’ (Ross, forthcoming)

PPT *saqup

PT: Gumawana *yagowa* ‘a long non-sweet banana’; Taupota *hakova* ‘banana’

PCP *da(y)u

SK: Taboro *daua* ‘k.o. banana: white flesh’

WCP: Motu *dau* ‘k.o. banana: very long’

POC *tawai* ‘k.o. banana’ (Ross, forthcoming)

PPT *tawai

PT: Gumawana *towe(ga)* ‘k.o. short non-sweet banana’; Gumawana *towe(nea)* ‘k.o. short sweet banana’; Iduna *tawai(nega)* ‘k.o. red banana’

PCP *toyo(na)

SK: Balawaia *(lewa)toyo* ‘k.o. sweet banana’; Balawaia *toyo(na)* ‘k.o. yellow taro’

NWCP: Lala ko?o, Roro u?u(na), Kuni ko, E. Mekeo o?o ‘banana’

POC *baReqo* ‘breadfruit fruit (?)’ (French-Wright 1983: *baReko; Ross, forthcoming)

PPT *bareqo

AT: Tawala *beleha* ‘breadfruit’ (expected form **baleho)

PNWCP *baley o* ‘sago palm’

NWCP: Kuni *faleo*, Lala *bale?o*, Roro *pare?o*


PPT *rabia

AT: Gapapaiwa *rapia*

BM: Bwaidoka *labia*

DD: Dobu *labia*

SUA: Sariba *labia*

KL: Kilivila *yabia*, Sudest *yabia*

PCP *labia* ‘cooked sago (?)’

SK: Hula *lapia* ‘cooked sago’; Maopa *lapia*, Taboro *rabia(buavea)* ‘sago pancake cooked in leaves for bride price’; Taboro *rabia(daidavidagarana)* ‘sago pudding’; Balawaia *labia*

WCP: Motu *rabia*, Motu *nau-rabia* ‘tapioca’; Gabadi *rabia*

NWCP: Doura *rabia*

Note that this term seems to have been used in PCP both as the generic for sago and for cooked sago, whilst PCP *baley o*, reflex of POC *baReqo* ‘breadfruit fruit (?)’, was applied to the sago palm.

POC *qatop* ‘sago thatch’ (Dempwolff 1938)

PPT *qatov* ‘sago leaf’

AT: Gapapaiwa *katova*, Ubir *atob* ‘sago leaves’
PCP *(y)ato
NWCP: Roro aho 'midrib sago leaf'

POC *niuR 'coconut (generic); coconut growth stage: ripe, brown but has not fallen yet'
   (Dempwolff 1938; Ross, forthcoming)

PPT *niur
   BM: Molima niula, Kalokalo niula 'coconut'
   DD: Dobu niu 'coconut'
   GUM: Gumawana niu 'coconut'
   AT: Tawala neula 'coconut'
   SUA: Sariba niu 'coconut'
   KL: Budibud niu 'coconut'

PCP *niu
   SK: Balawaia niu, Taboro niu, Hula niu 'coconut'
   WCP: Motu niu 'coconut tree and mature fruit'; Gabadi niu 'coconut'
   NWCP: Lala niu, Doura niu 'coconut'

POC *karu 'coconut growth stage 5: green, drinkable' (Ross, forthcoming)

PPT *karu (no non-CP reflexes found)

PCP *kalu 'young drinking coconut'
   SK: Hula kalu 'half ripened coconut'
   WCP: Motu karu
   NWCP: Lala alu?alu, Kuni kalu

PPT *dayo 'young drinking coconut'
   AT: Are daio(koa), Wedau daðo

PCP *dao
   SK: Balawaia rao, Hula rao, Maopa rao

POC *tabwa 'coconut growth stage 9: sprouted' (Ross, forthcoming)

PPT *tabwa
   DD: Dobu tabwâ(luluto) 'coconut sprouted'
   GUM: Gumawana tabo(na) '8th stage: coconut that has sprouted'

PCP *tab(o,u)
   SK: Taboro (niu) tubu(na)
   NWCP: Roro kapu

POC *punut 'coconut husk; fibres on coconut husk' (Ross, forthcoming)

PPT *bunu
   BM: Yamalele bunu
   SUA: Dauí bunu

PCP *bunu
   SK: Balawaia bunu, Hula punu
WCP: Motu bunu
NWCP: Lala punu, Roro punu, E. Mekeo funu ‘young drinking coconut’

POC *para(q) ‘coconut embryo’ (Ross, forthcoming)
PPT *varaq
BM: Iduna valaga ‘seed inside coconut; old yam’

PCP *vala
SK: Hula vala ‘spongy ball inside sprouting coconut’
WCP: Motu hara ‘brain, bone marrow’

POC *nuRut ‘sheath around base of coconut frond, used as strainer’ (Ross, forthcoming)
PPT *nunut
SUA: Sariba lulusi

PCP *nuulu
WCP: Motu nuru

POC *kiRe ‘coastal pandanus, Pandanus tectorius (syn. Pandanus odoratissimus)’ (French-Wright 1983)
PPT *qire
SUA: Sariba kile-kile

PCP *yele
SK: Hula yile, Balawaia yele(ka)
WCP: Motu gere-gere, Gabadi ?ere-?ere
NWCP: Doura (hena)?ere, Roro ?ere-?ere, Kuni el-ele

POC *wai ‘mango (generic)’, POC *wai-wai ‘wild mango’ (French-Wright 1983; Ross, forthcoming)
PPT *(wai)wai ‘mango’
KL: Kilivila we-wa ‘mango’

PCP *(wai)wai
SK: Taboro ue(ka), Hula waiwai ‘mango’
WCP: Motu vai-vai ‘wild mango’

POC *quRis ‘Polynesian plum, hog plum, Tahitian apple, golden apple, Spondias cytherea (syn. Spondias dulcis)’ (Ross, forthcoming)
PPT *quirc(s) (no non-CP cognates found)

PCP *yuli ‘k.o. tree’
WCP: Motu uri ‘k.o. tree’
NWCP: Roro ?uri ‘k.o. tree: like mangrove, used in house-building’
POC *ñōnum 'Indian mulberry tree, *Morinda citrifolia* (Blust 1978b)
PPT *nonu
  GUM:  Gumawana nona 'k.o. fruit'
  BM:  Bwaidoka nono
PCP *nonu
  WCP:  Motu nonu

PWO *pinuaq 'canarium almond, *Canarium* sp. (?)' (Ross, forthcoming)
  MM:  Patpatar hinui 'canarium almond, *Canarium indicum*'

POC *laqia 'ginger, *Zingiber officinale* (French-Wright 1983)
PPT *laqia (no non-CP cognates found)
PCP *yayia
  WCP:  Motu ayi
  NWCP:  Roro aea(bu)

POC *pioj ‘a kind of edible wild cane or a reed, *Saccharum spontaneum* (?)’ (Pawley 1978; French-Wright 1983)
PPT *vioj (no non-CP cognates found)
PCP *vido 'k.o. cane'
  WCP:  Motu hido 'a wild cane growing by the riverside'

POC *topu 'sugarcane, *Saccharum officinarum* (Dempwolff 1938)
PPT *tovu
  DD:  Duau tohu
  GUM:  Gumawana tou
  BM:  Iduna tou
  AT:  Gapapaiwa tom, Tawala tom
  KL:  Kilivila tou
PCP *tovu
  OM:  Ouma tou
  SK:  Maopa ovu
  WCP:  Motu tohu

PNGO *b°wau 'bamboo'
  NGO:  Tuam boi
  VITZ:  Tami b°ai, Malasanga bo(a)
  Bel:  Biliau buau
  SCH:  Manam buau-buau '(house) wall'
PPT *bau
  DD: Duau baubau
  AT: Wedau baubau
  SUA: Sariba baubau
  KL: Kilivila bobau

PCP *bau
  SK: Hula paupau
  WCP: Motu bau, Motu baubau ‘bamboo pipe’

POC *tupa ‘derris root’ (Dempwolff 1938)

PPT *tuva
  AT: Wedau tuva
  BM: Iduna tuva
  SUA: Tubetube tuva
  KL: Kilivila tuva

PCP *tuva ‘derris root’
  WCP: Motu tuha
  NWCP: Lala kuva, Roro huba

Proto Peripheral Papuan Tip *qubw'aq ‘k.o. tree’
  KL: Nimoa hubwahi, Sudest ubwa ‘tree’

PCP *yubo ‘k.o. tree: Eugenia sp.’
  SK: Balawaia yuyubo, Taboro gugubo
  WCP: Motu ubo

POC *buaq ‘betelnut’, Areca catechu’ (Dempwolff 1938)

PPT *buaq
  KL: Kilivila bua ‘areca nut’

PCP *bua
  SK: Taboro bua

PWCP *bua-tau
  NWCP: Lala bua-kau
  WCP: Gabadi bua-kau, Motu bua-tau

PPT *kero ‘k.o. tree’
  BM: Bwaidoka kelo ‘k.o. tree, used for outrigger booms’

PCP *kelolo
  WCP: Motu keroro ‘k.o. tree’
  NWCP: Roro eroro ‘k.o. tree’

PPT *magi ‘k.o. tree’
  GUM: Gumawana magi ‘areca palm’
  DD: Dobu magi ‘areca palm’
PCP *magi ‘k.o. tree: Ficus sp.’
   WCP: Motu magi ‘k.o. tree: Ficus sp.’
   SK: Balawaia magi ‘k.o. tree: Ficus sp.’

POC *na(r,R)a ‘k.o. tree, Pterocarpus indicus’ (Blust 1980a)
PPT *nara (no non-CP cognates found)

PCP *nala
   WCP: Motu nara

POC *tojoR ‘mangrove, Bruguiera spp.’
PPT *togor
   AT: Maisin toowo
   PCP *togo
   WCP: Motu to-to ‘edible mangrove sp.’
   NWCP: Roro ho-ho

POC *Reqi ‘k.o. grass, Imperata cylindrica’ (Ross 1988)
PPT *reqi
   AT: Wedau rei
   SUA: Sariba lei(busu)
   KL: Kilivila lei
   PCP *leyi ‘grass’
   WCP: Gabadi rei ‘forest’; Motu rei ‘grass’
   SK: Balawaia leyi ‘grass’; Hula leyi

4.3.3 TERRESTRIAL FEATURES

POC *koro ‘interior hills’
   NWS: Mono-Alu olo ‘mountain’
   SES: Gela yoro, Lenggo yo-yoro ‘mountain’
   SWNB: Mok oro ‘mountain’
PPT *qoro (no non-CP reflexes known)

PCP *(yolo)yolo ‘mountain’
   OM: Magori oro ‘mountain’
   SK: Balawaia yolo, Maopa yolo, Hula olo ‘mountain’; Hula olo-olo ‘hill’
   WCP: Motu ororo ‘mountain’
   NWCP: Lala lolo, Doura roro, Roro oio ‘mountain’

POC *qutan ‘forest’ (Dempwolff 1938)
PPT *qudan
   BM: Bwaidoka yudana
   KL: Misima ulan, Nimoa uda

PCP *yuda
   NWCP: Doura uta
WCP: Motu *uda
SK: Balawaia yuramata, Hula *ura
NWCP: Lala *(la)?uka (expected form ?uta), Kuni *(ya)uka

POC *raRo(q) 'clay' (Milke 1965)
NWS: Haku *lolo, Uruava raro, Roviana raro 'cooking pot'
PPT *rar{o}(q) (no non-CP reflexes known)
PCP *lalo 'clay'
WCP: Motu raro 'clay'

POC *kaput 'dust, grey ash' (Grace 1969)
WLZ: Vitu *(yabu)yabu, Bola *yavu 'fog', Vali *(yavu)yavu, Meramera kavu 'grey ash'
PPT *kavu(t) (no non-CP reflexes known)
PCP *kavu

OM: Ouma kau, Magori kau 'dust, grey ash'
SK: Balawaia kau, Hula kavu 'grey ash'; Hula ka-kavu 'dust'
WCP: Motu kahu 'dust'
NWCP: Lala apu(lolo), Roro apu(roro), E. Mekeo (ae)apu 'dust'; Roro abu, E. Mekeo apu 'fog'; E. Mekeo apu-apu, W. Mekeo abu-abu, Kuni abu 'cloud'

POC *palU 'stone' (Dempwolff 1938)
PPT *vatu

BM: Bwaidoka vatu
KL: Kilivila vatu, Misima pat, Nimoa pak

PCP *vatu

SK: Maopa vau
WCP: Gabadi vaku

POC *ranum 'fresh water' (Dempwolff 1938)
PPT *ranu

KL: Budibud danu 'water'

PCP *lanu 'water'

SK: Taboro ranu, Balawaia nanu, Hula nanu, Maopa nalu
WCP: Motu ranu

POC *waiR 'water' (Dempwolff 1938)
PPT *wair

AT: Wedau waira, Tawala goila
KAK: Dawawa waira
BM: Molima goila
DD: Duau waila
SUA: Sariba goila, Tubetube waila
KL: Misima we-wel, Nimoa we-wel
PCP *wai
OM: Magori voi ‘water, river’
SK: Hula wai ‘river’
WCP: Motu (sina)vai ‘river, water’; Gabadi vei
NWCP: Lala vei, Doura vei, Roro babei, Roro bei, Kuni vei, E. Mekeo fei

POC *tanoq ‘earth’ (Dempwolff 1938)
PPT *tanoq
BM: Anuki tonwa
AT: Gapapaiwa tano
DD: Dobu tano, Duau tanoha
SUA: Daui tano, Sariba tano, Bohutu tanohi

PCP *tano
SK: Balawaia tano, Taboro tano, Hula ano(para) ‘world’
WCP: Motu tano, Gabadi kano(baga)
NWCP: Lala kano(baka), Doura kano, Roro hano, Kuni kano, E. Mekeo ano, W. Mekeo ano

4.3.4 TERRESTRIAL ACTIVITIES AND TERRESTRIAL TECHNOLOGY

POC *pasoq ‘plant (something)’ (Ross 1988)
NGO: Tuam vosoy
VTZ: Sio (si)pau, Mbula paza
Bel: Takia pae
SCH: Kairiru vyas
HG: Misim vado, Mapos varoh
BV: Vitu vadoy(i)
WLZ: Bola varo
NI: Nalik fasu
SES: Gela vah(i), Lau fas(i), Arosi has(i)
PPT *vasoq
AT: Gapapaiwa vao ‘grow, plant (crops); garden’; Tawala wago ‘plant by pushing into the ground; strike a cutting’
KL: Sudest vwaδ(i)δi ‘push seed into hole/plant; insert’; Misima válu ‘to plant’

PCP *varo
SK: Balawaia varo, Maopa varo-varo, Hula varo
WCP: Motu hado
NWCP: Lala va-vado, Roro bato, Kuni bado, E. Mekeo fau

PMP *qa(l,R)ad ‘fence, palisade’

POC *qaRa(r)
NCV: Raga ara, N. Efate (na)ara ‘wall of bamboo or cane’

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40 This reconstruction is supported by Elkins’ (1974) Manobo data and the Oceanic data listed here.
PN: Tongan ʔaa ‘fence, wall, enclosure’; Samoan aa(i) ‘fence in (something)’; E. Uvean ʔaa ‘palisade’; E. Futunan ʔaa ‘wall’

PPT *qara
AT: Ubir gara, Are gara

PCP *yala
SK: Hula ala
WCP: Motu ara, Gabadi ara
NWCP: Lala ala, Roro ara, Kuni ala

PPT *gana ‘fence’
KAK: Dawawa gana
DD: Dobu gʷagʷana
SUA: Sariba gana
KL: Misima gana, Sudest gana

PCP *gana
OM: Magori gana, Ouma gana
SK: Balawaia yana, Hula kana

POC *(quma ‘garden’(Dempwolff 1938)

PPT *quma
SUA: Sariba uma(i), Tubetube kuma(i)
KL: Nimoa hume, Sudest uma

PCP *yuma ‘garden’
WCP: Motu uma
NWCP: Roro uma, Kuni (diaba)uma, E. Mekeo uma, W. Mekeo uma

POC *(pʰ)agur ‘hoe’ (Dempwolff 1938)

PPT *bagur ‘garden’, *vaqur ‘plant (something)’
BM: Bwaidoka bakula, Kalokalo bagula ‘garden’
DD: Dobu bagula ‘garden’
KL: Kilivila bagula, Nimoa baguya ‘garden’; Kilivila vaula ‘plant (sweet potato +)’

PCP *v<in>ayula ‘do work’
SK: Hula inayulu, Maopa ulavunu (metathesis of **(u,i)navulu)
NWCP: Lala vinaula, Kuni bilaula, E. Mekeo pinauna

POC *kuron ‘cooking pot’ (Dempwolff 1938)

PPT *kuron
BM: Molima ʔulena
DD: Dobu ʔulena
KL: Misima ulun, Sudest yuye

PCP *yulo ‘cooking pot’
WCP: Motu uro
SK: Balawaia yulo, Hula yulo, Maopa ulo
PPT *naquq 'clay dish or pot'
GUM: Gumawana no 'clay pot'
AT: Ubir naukwa(t), Gapapaiwa nau, Tawala nau 'cooking pot'
BM: Iduna nau?a 'wooden dish'
DD: Sewa Bay (i)nawe 'cooking pot'
KL: Sudest noya 'wooden dish'

PCP *nayu 'clay dish'
SK: Hula nayu
WCP: Motu nau
NWCP: Kuni nau

POC *b(w)i1o 'coconut shell used as liquid container or cup' (Ross, forthcoming)

PPT **b(w)i1o (no non-CP reflexes known)

PCP *bio
WCP: Motu bio

PMP *dapuR 'fireplace'

POC *rapu
ADM: Nyindrou drahu (jih)
FIJ: E. Fijian (matâ)dravu

PPT *ravu
BM: Iduna (va)lafu 'cause to melt by heat of fire'
AT: Gapapaiwa (si)ravu(nua) 'extinguish'

PCP *ravu
WCP: Motu rahu-rahu

POC *qumu(n,R) 'earth oven' (Lichtenberk, this volume *qumun)

PPT *qumu(n,r) 'earth oven', *qumun(i) 'bake in an earth oven'

AT: Are kumra 'bake'
BM: Diodio umuna, Iduna kumula 'earth oven'; Iduna kumul(i) 'bake (in oven)'; Yamalele gumula 'bake'
DD: Dobu ?umula, Duau kumuna 'earth oven'; Dobu ?umul(i), Sewa Bay umul(i), Duau kumuna 'bake'
KL: Kilivila kumkula 'earth oven'; Misima (wi)umun 'bake (in oven)'; Nimoa humu, Sudest yume 'bake'

PCP *yumu 'earth oven'

OM: Ouma umu 'black face paint'
SK: Hula (ve)yumu 'blacken face in stripes'
WCP: Motu amu 'earth oven'; Motu guma 'soot'
NWCP: Roro gumu 'charcoal'; Roro umu, W. Mekeo umu, Lala uma-uma 'black'; E. Mekeo uma 'bake (in oven), burn (grass)'; E. Mekeo umu 'black, charcoal'
PNGO *gabur ‘bake (on fire)’

Bel: Wab gabu ‘(fire) smoke’
HG: Vehes gabur(iŋ), Mapos gabul(eŋ), Patep ɳbul(a) ‘boil’

PPT *gabur

DD: Dobu gabu ‘bake’
BM: Molima gabu ‘bake, burn (grass)’; Yamalele kabun(i) ‘bake’; Iduna gabu ‘bake (on fire), burn grass’
AT: Meniafia afun ‘(fire) burn’; Ubir gagab ‘flicker’; Are kapun(i), Gapapaiwa kapun(i) ‘bake’
SUa: Sariba gabu
KL: Kilivila gabu ‘bake, burn (grass)’; Budibud gabula ‘(fire) burn’

PCP *gabu

OM: Magori gapu, Bina gabu ‘burn (grass)’
SK: Balawaia Ɂabu ‘bake (on fire), burn (grass)’; Maopa kapu ‘burn (grass)’; Hula kapu ‘bake (on fire)’; Hula kapur(a) ‘burn (grass)’
NWCP: Lala Ɂabu ‘bake (in oven), burn (grass)’; Kuni afu ‘bake (on fire)’

POC *tunu ‘bake (on fire), burn (grass)’ (Dempwolff 1938; Lichtenberk, this volume)

PPT *tunu

BM: Iduna tun(a) ‘set fire to; burn off (grass)’
AT: Tawala tunu(ya) ‘shine a light on, light up’
KL: Misima tun ‘sting’

PCP *tunu ‘bake (on fire)’

WCP: Motu tunu ‘bake (pottery on fire)’

POC *nasu ‘boil (something)’ (Milke 1965; Blust 1981d)

PPT *nasu (no non-CP reflexes found)

PCP *naru ‘bake (on fire), boil (something)’

SK: Maopa naru, Hula nanu ‘boil (something)’
WCP: Motu nadu ‘boil (something)’; Gabadi nagu ‘bake (on fire)’
NWCP: Lala nadu-nadu ‘cooking pot’; Doura natu ‘bake (on fire)’; Kuni nadue ‘boil (something)’; E. Mekeo naku, W. Mekeo nagu ‘bake (on fire), boil (something)’

POC *qutup ‘submerge a vessel to fill it’ (Milke 1968)

BV: Vitu ɹitu(i) ‘fill (cup +)’
NI: Tabar utuv(i) ‘fill (cup +)’, Lihir ut ‘fill (cup +)’
PN: Tongan ɹu ‘get or draw liquid’; Samoan utu ‘draw water, fill with liquid’; Maori utuh(i) ‘fill (vessel) with water’

PPT *qutup

BM: Iduna ɹutuv(i) ‘dip, put, soak in water, (make) wet, submerge’
AT: Wedau utuv(a) ‘flood’
KL: Misima utu ‘push under sea and cause to take in salt water’
CENTRAL PAPUAN CULTURE HISTORY: SOME LEXICAL EVIDENCE

PCP *\textit{yutu} ‘draw water’
OM: Ouma \textit{uhu} ‘draw water’
SK: Balawaia \textit{yutu} ‘draw water, high tide’; Hula \textit{yu}u ‘draw water’
WCP: Motu \textit{utu} ‘draw water, high tide’; Gabadi \textit{uku(a)} ‘high tide’
NWCP: Lala \textit{uku} ‘high tide’

POC *\textit{pisiko} ‘meat, flesh’ (Milke 1968)

PPT *\textit{visiqo}
BM: Iduna \textit{vido}
AT: Gapapaiwa \textit{vio}

PCP *\textit{virigo}
SK: Balawaia \textit{virigo}, Taboro \textit{virigo}, Hula \textit{viro}’o
WCP: Motu \textit{hidio}
NWCP: Lala \textit{vidiu} ‘fat’; Roro \textit{bisio}, Kuni \textit{bidio}, E. Mekeo \textit{pikio}

POC *\textit{kani} (‘eat’) + NOMINALISER ‘staple food; food in general’ (Ross, forthcoming)
PPT *\textit{qani-qani} ‘staple food; food in general’
KL: Misima \textit{ánán} ‘yams; root crops, nuts and fruit; food’
PCP *\textit{[yani-Jyani}
SK: Taboro \textit{yani} ‘short cooking banana’; Hula \textit{ani} ‘banana’
WCP: Motu \textit{ani-ani} ‘food’
NWCP: Mekeo \textit{ani-ani} ‘food’

PPT *\textit{ribi} ‘rubbish’
DD: Dobu \textit{libi}

PCP *\textit{libi}
SK: Hula \textit{ripi-ripi} ‘fragments of food or rubbish’

POC *\textit{qapuR} ‘lime’ (Dempwolff 1938)
PPT *\textit{gavur}
AT: Meniafia \textit{gaura}
SUA: Tubetube \textit{kauli}
KL: Nimoa \textit{haui}

PCP *\textit{yavu} ‘lime’
SK: Balawaia \textit{yavu}, Taboro \textit{yau}, Maopa \textit{yavu}, Hula \textit{avu}
WCP: Motu \textit{ahu}
NWCP: Lala \textit{avu}, Kuni \textit{abu}, E. Mekeo \textit{apu}

Lime, made by burning coral, is chewed with areca nut.

POC *\textit{pusuR} ‘bow’ (Dempwolff 1938), ‘hunting bow’ (Blust 1972c)
PPT *\textit{vusur}
PCP *\textit{vuru}
WCP: Gabadi \textit{ugu} ‘bow’
NWCP: Kuni \textit{budu} ‘arrow’
CP speakers did not traditionally use the bow and arrow, but knew it from their contacts with people of the Papuan Gulf (Nigel Oram, pers.comm.; Tom Dutton, pers.comm.).

POC *tibwa(q) ‘arrow, dart’ (Osmond, forthcoming)

NCV: Mota tikip’a ‘blunt arrow, bird arrow; to shoot (not in fighting)’; Mota tikp’ewa ‘shoot and hit (something)’; Paamese (a)tuvo ‘arrow’; Atchin tsip ‘blunt arrow’; Nguna (na)tipwa ‘arrow, spine, needle’

FIJ: E. Fijian tiga ‘reed dart, used in game of veitiqa’

PPT *dibwa(q) ‘spear, arrow’

POC *qio(r) ‘spear’

NGO: Kove iðo, Gitua izoŋ

VTZ: Pono yu ‘spear made from limbum or betelnut palms, traditionally used for pig hunting and fighting’

SWNB: Avau yo ‘shoot’

MGN: Mamusi yio, Uvol io ‘arrow’

SCH: Manam io ‘long lance, whose wooden spear point has prongs on four sides’

HG: Kaiwa ii ‘arrow’; Patep yii

NI: Lamasong iu ‘to shoot’; Konomala iu ‘arrow; to shoot’

SES: Lau io ‘poisoned spear’

NCV: Nguna (na)io

PPT *qio(r)

BM: Anuki io, Bwaidoka yio, Diodio yio ‘arrow’; Kalokalo gio ‘arrow, spear’

AT: Ubir io, Boianaki io, Tawala iyola ‘fish spear’

PCP *yio

SK: Balawaia gio

WCP: Motu io

NWCP: Lala io, E. Mekeo iso

PPT *qucir ‘fish spear’

BM: Kalokalo kudila, Iduna hudila
PCP *(y)udi
WCP: Motu udi

POC *ma(d,ja) 'club' (Osmond, forthcoming)
  NWS: Sengga maja, Lungga maja, Simbo maja 'headhunting axe, formerly club'
  SES: Arosi mada 'club (generic)'; Bauro mata, Kahua mata
  FIJ: E. Fijian mādā 'k.o. club used in war dances'

PPT *maja (no non-CP reflexes known)
PCP *mada
SK: Hula mara 'wooden club'

POC *(q,g)apw(e,i) 'k.o. club' (Osmond, forthcoming)
  SES: Lau afui 'k.o. club'; Faghani gafe 'club'

PPT *(q,g)avi
AT: Gapapaiwa gavi 'make war; do battle'
PCP *gavi
  WCP: Motu gahi 'flat, round stone club'

POC *panua 'land, territory, homeland' (Dempwolff 1938)

PPT *vanua 'village'
  BM: Molima vanue
  DD: Dobu anua
  SUA: Sariba yanua
  KL: Kilivila valu, Misima panua

PCP *vanua 'village'
  SK: Balawaia vanua, Maopa vanua, Hula vanuga
  WCP: Motu hanua, Gabadi vanua
  NWCP: Lala vanua, Kuni banua, E. Mekeo panua

POC *salan 'path' (Dempwolff 1938)

PPT *salan (no non-CP reflexes found)
PCP *raya
  OM: Ouma raea, Magori rae
  SK: Maopa (rađa)dara
  WCP: Motu dala
  NWCP: Lala dala, Doura tara, Roro taea(ra), Kuni daya, E. Mekeo kea(na), W. Mekeo gea(na)

POC *qeba 'pandanus mat' (Ross, forthcoming)

PPT *qeba (no non-CP reflexes found)
PCP *qeba
  PT: Sinagoro yeba
### APPENDIX 1: ABBREVIATIONS OF LANGUAGE NAMES

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Language Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADM</td>
<td>Admiralty Islands</td>
</tr>
<tr>
<td>AT</td>
<td>Are/Taupou chain</td>
</tr>
<tr>
<td>BM</td>
<td>Bwaidoka/Molima network</td>
</tr>
<tr>
<td>BV</td>
<td>Bali-Vitu</td>
</tr>
<tr>
<td>CMP</td>
<td>Central Malayo-Polynesian</td>
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<tr>
<td>CP</td>
<td>Central Papuan</td>
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<tr>
<td>DD</td>
<td>Dobu/Duau chain</td>
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<tr>
<td>FIJ</td>
<td>Fijian</td>
</tr>
<tr>
<td>G/NWCP</td>
<td>Gabadi/Nuclear West Central Papuan</td>
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<tr>
<td>GUM</td>
<td>Gumawana language</td>
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<tr>
<td>HG</td>
<td>Huon Gulf (excluding the Markham languages)</td>
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<td>KAK</td>
<td>Kakabai chain</td>
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<tr>
<td>KL</td>
<td>Kilivila/Louisiades network</td>
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<td>MGN</td>
<td>Mengen</td>
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<td>MIC</td>
<td>Nuclear Micronesian</td>
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<td>Markham</td>
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<td>Meso-Melanesian</td>
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<td>New Caledonia</td>
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<td>North/Central Vanuatu</td>
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<td>NGO</td>
<td>Ngero</td>
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<td>NI</td>
<td>New Ireland (excluding the North-West Solomonic subgroup thereof)</td>
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<td>NMDX</td>
<td>North Mainland/D'Entrecasteaux network</td>
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<tr>
<td>NWCP</td>
<td>Nuclear West Central Papuan network</td>
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<td>NWS</td>
<td>North-West Solomonic</td>
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<td>OM</td>
<td>Ouma/Magori subfamily</td>
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<td>PAN</td>
<td>Proto Austronesian</td>
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<td>PCEMP</td>
<td>Proto Central-Eastern Malayo-Polynesian</td>
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APPENDIX 2: CONSONANT CORRESPONDENCES
(The key is at the end of the Appendix)

(a) CENTRAL PAPUAN FAMILY

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**Central Papuan Culture History: Some Lexical Evidence**

**469**
(b) NUCLEAR PAPUAN TIP NETWORK

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### KILIVILA/LOUISIADES NETWORK

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### KEY

Orthographies are as in Ross (1988). The terms 'fortis' and 'lenis' are used as in Ross (1988):

- **x-x-x** refers to position in word (i.e. initial-medial-final)
- **x-y** refers to position in word (i.e. initial-medial-final) or in an unstressed syllable
- **s/₁** and **s/₁**
- **x** + rounding of the following vowel
- **x** + raising of the following vowel
- **x** is indirectly inherited (in the sense of Biggs 1965)
- **x/₀**
- **x/₀ #** reflects a POC/PPT word-final consonant, but is followed by a paragogic vowel in the modern language.
APPENDIX 3: PCP *p, *k AND *kw

(a) DIRECTLY INHERITED PCP ETYMA CONTAINING PCP *p

See also:
PPT *kwapir ‘skin’, PCP *kwapi (section 3.2.2)
PWO *pa(r,R)a ‘frog’, PCP *pala (section 4.3.1)
PPT *pewa ‘bow’, PCP *pewa (section 4.3.4)

POC *piau ‘throw, fling’
   NCV: Lewo viao(ni) ‘throw (spear)’
   PN: Hawaiian hiu, Maori őiu ‘fling’; Marquesan hiu ‘cast (for fish with a lure)’

PPT *piau
   BM: Iduna fia ‘shoot’; Bwaidoga fia ‘throw’
   SUA: Bohutu pei ‘throw’

PCP *piau
   SK: Hula pia ‘throw’; Balawaia piu ‘throw, shoot’
   WCP: Gabadi viu ‘throw’
   NWCP: Mekeo piu ‘throw’

POC *poku ‘burst open, explode’
   VTZ: Mbula pok ‘burst forth into the open; appear, come into view; break’
   Bel: Takia -puk ‘erupt; break through; break with noise; burst open; crack’
   NI: Ramuaaina puek ‘burst’
   ADM: Drehet (hi)p’ok ‘crack, split open’

PPT *po(q)u
   SUA: Daui pou

PCP *pou
   SK: Hula pou, Balawaia pou ‘burst’
   WCP: Motu pou ‘burst’
   NWCP: Lala pou ‘burst’

PNGO *piri ‘shoot’
   VTZ: Mbula piri
   Bel: Megiar fid ‘bow’

PPT *pir[i, u]
   BM: Iduna fidu ‘small spear for spearing small fish’

PCP *pidi
   OM: Ouma nisi, Magori biti, Yoba pidi
   SK: Taboro fidi, Hula piti ‘hunt’
   WCP: Motu pidi
   NWCP: Lala pidi-pidi ‘hunt’; Doura piti, E. Mekeo pitsi, W. Mekeo biji
PPT *pape- 'wing'

AT: Ubir fafe-, Are pepe-, Minavega pape-, Wedau pape-, Tawala apape-
BM: Yamalele fafe-, Molima pape-
DD: Dobu pape-
SUA: Tubetube pepe-
KL: Misima pepe-

PCP *vape-; borrowed Pre-OM form *papa-

OM: Ouma papa-, Yoba papa-, Bina papa-
WCP: Motu hape

(b) DIRECTLY INHERITED PCP ETYMA CONTAINING PCP *k

See also the following:

POC *kapato(n) 'caterpillar, grub', PCP *kavato (section 4.3.1)
POC *kobar 'k.o. (large?) hermit crab', PCP *koba (section 4.2.1)
POC *reke 'pocket of seine net', PCP *leke 'fishing net' (section 4.2.3)
PTT *karayudi 'fishing spear', PCP *kara(y)udi (section 4.2.3)
POC *kaput 'dust, grey ash', PCP *kavu(t) (section 4.3.3)

POC *kanus 'spittle', *(kanus-i, kanisu) 'spit' (Blust 1978a *qanus-i)

SCH: Kairiru qanswo '(someone) spit'
NI: W.Kara kanus
ADM: Mussau kanusu
FIJ: E. Fijian kānusi 'spit'
PN: Tongan ?a-?anu 'spit'

PPT *kanus, *(kanisu, kanus)itu)

AT: Gapapaiwa kanu
SUA: Sariba kaniso

PCP *kanur(u) 'spittle'

SK: Balawaia kanunu (expected form **kanuru)
WCP: Motu kanudi, Ganadi ainvu
NWCP: Lala ?anodi, Roro atosi, Kuni anodi

PAN *korik 'scrape' (Dempwolff 1938; Blust 1972c)
POC *kori 'scrape (coconut)'

SCH: Manam kori-kori, Kairiru quor
HG: Numbami ko-koli 'coconut) scraper'
SWNB: Amara kor-kor 'scrape (taro)'
NI: Nalik kur, Notsi kul, Tabar kor-kori
NWS: Mono oli
SES: Lau kori
FIJ: E. Fijian (ta)kori 'scrape, shave'
PPT *{kori, kwari}  
DD: Dobu kwali 'scratch'  
KL: Kilivila kwali 'scratch', Misima kol 'scratch', Nimoa kori 'scratch'  
PCP *yoli 'scratch, scrape'  
OM: Ouma kori 'scratch' (probably borrowed: k-)  
WCP: Motu ori, Gabadi ori 'scratch'  
NWCP: Lala oli-oli 'coconut scraper', Roro ori  

POC *kau-bebe(q) 'butterfly'  
BV: Vitu kebebe, Bali kabeke  
ADM: Mussau kaubebe  

PPT *kau-bebe(q) (the form reflected in non-CP languages is PPT *kara-bembem)  
PCP *kaubebe  
SK: Balawaia kaubebe  
WCP: Motu kaubebe  

POC *[k,g]jinit 'pinch with fingernails' (Milke 1968)  
VTZ: Tami ginit 'pluck'  
SCH: Manam kigt(a)  
NI: Tolai kinit 'pick out with fingernails'  
ADM: Mussau kinit(i)  
SES: Gela yini, Lau ?ini, Lau gini 'pinch off'  
NCV: Efate kinit(ia) 'nip with fingers'  
FIJ: Fijian kini 'pinch with the nails'  
PN: Tongan kini 'make an incision so as to let blood'  

PPT *(k,g)ini(t)  
GUM: Gumawana ginis(i)  

PCP *kini  
SK: Hula kini, Balawaia kini  
WCP: Motu kini  
NWCP: Roro ?ini  

POC *jika(p) 'bad, rotten'  
SCH: Wogeo jika, Kairiru jieq '(wood) rotten'  
SES: Bughotu dika, Gela dika 'bad'  
FIJ: E. Fijian ðika(a), ðikav(a) 'weaken, wound'  

PCP *dika 'bad'  
WCP: Motu dika  
NWCP: Doura ti?a, Roro kia  

POC *saqat 'bad' (Dempwolff 1938)  
BV: Bali zayata  
NI: Tiang sat, Notsi caka
PPT *saqat (no non-CP reflexes known)
PCP *raka
  SK: Hula raka(va), Balawaia raka(va)
  WCP: Gabadi ga-ga?a

PWO *kuku 'defecate, excrete'
  BV: Vitu koko
  WLZ: Bulu koko
  NWS: Kia kuku
PPT *kuku (no non-CP cognates found)
PCP *kuku 'defaecate'
  SK: Hula kuku, Balawaia kuku
  WCP: Motu kuku

PWO *kaka 'older sibling, same sex'
  Bel: Biliau kak, Mindiri kak 'older sibling, same sex'
  HG: Yabem kaka- 'older sibling, same sex (term of address)'
  BV: Vitu kaka- 'person'
  WLZ: Bulu kaka(tara) 'person'
  NWS: Vangunu kaka-, Sengga kaka- 'older brother'; Kia kaka 'grandparent; older brother'
  SES: Bauro kaka- 'grandparent'
PPT *kaka- (no non-CP reflexes known)
PCP *kaka-
  SK: Hula a- 'friend'
  WCP: Balawaia kaka- 'older sibling, same sex'
  NWCP: Doura a?a-, Lala a?a-, Kuni a- 'older brother'; Roro a?a-, E. Mekeo aa- 'older sibling, same sex'

PWO *(ka-wiRi, ka-waRi) 'left-hand'
  NI: Notsi kayal, Tabar keari
PPT *(kauri, ka-wiri) (no non-CP reflexes known)
PCP *kauli
  SK: Hula kauli, Balawaia kauli
  WCP: Motu kauli

PNGO *beku 'fall (e.g. from tree)'
  HG: Bukawa peq, Kela (ge)mbe, Numbami peka, Kaiwa bek, Misim (he)vYak
PPT *beku
  BM: Iduna be?u
  DD: Dobu be?u
  AT: Gapapaiwa peku, Wedau peu
  KAK: Dawawa beku
SUA: Sariba be?u
KL: Misima beku

PCP *beku
OM: Magori biu
NWCP: Roro pe?u, E. Mekeo feu

PPT *kawa 'go mad'
AT: Maisin kava-kava

PCP *kawa
OM: Ouma ?ava
SK: Hula kawa 'mad'
WCF: Motu kava 'mad'

PPT *kubwa 'short'
BM: Molima ku-kubo-
DD: Dobu ku-kupa-
SUA: Tubetube ubw-a-kubwa-
KL: Kilivila ku-kupi-, Misima kaubwa, Nimoa hubo-hubo-, Sudest umbo 'be too short'

PCP *kuba
OM: Magori ?obo-?obo
SK: Hula kupa, Balawaia kuba
NWCP: W. Mekeo ku-kupa

(c) PCP COGNATE SETS CONTAINING PUTATIVE PCP *kw

(See also PPT *kwapir 'skin', PCP *kwaPI, listed in section 3.2.2.)

POC *kawak 'dog'
NI: Lavongai kauek
BV: Bali kauaka
WLZ: Harua kaua
NGO: Kove kawa
SES: Gela kau, Bauro au

PPT *kwa[i]wak
SUA: Bohutu waiowa
KL: Kilivila kaukwa, Nimoa hewo

PCP (?) *kwa[i]wa
OM: Bina koivo
SK: Balawaia kwa[a]-lu, Taboro kwaiva, Hula kwaea

PWCP *(k)wa[et]a
WCP: Gabadi oveka
NWCP: Roro waeha, Kuni obeka, Lala oveka, E. Mekeo amu'e, W. Mekeo auke
PPT *k\textsuperscript{w}ai-(k)\textsuperscript{w}a 'k.o. clay pot'
   AT: Are (nau)k\textsuperscript{w}aik\textsuperscript{w}a 'cooking pot'
   KL: Kilivila (-)k\textsuperscript{w}ai(-) 'clay pot; pot-like'

PCP (?) *k(w)\textsuperscript{a}i(y)\textsuperscript{w}a
   SK: Hula k\textsuperscript{w}agu 'clay, waterpot'
   WCP: Motu kaeva 'pot with rim'

PPT *k\textsuperscript{w}adi 'k.o. flying insect (?)'
   AT: Tawala k\textsuperscript{w}adi(yoyo) 'spider'
   KL: Sudest kade 'k.o. flying insect'

PCP (?) *k\textsuperscript{w}adi
   WCP: Motu k\textsuperscript{w}adi 'grasshopper'

PPT *k\textsuperscript{w}ano (meaning uncertain)
   DD: Duau k\textsuperscript{w}ano 'swamp'
   AT: Tawala k\textsuperscript{w}ano 'dirt'

PCP (?) *k\textsuperscript{w}ano
   SK: Hula k\textsuperscript{w}ano 'earth, sand'
   NWCP: Roro ano 'sand'

POC *kuku 'fingernail' (Dempwolff 1938)

PPT *k\textsuperscript{u}ku-
   KL: Kilivila k\textsuperscript{u}k\textsuperscript{w}a- 'claw'

PCP (?) *k\textsuperscript{w}aku
   SK: Hula k\textsuperscript{w}a\?u 'heel'
   WCP: Motu k\textsuperscript{w}aku 'claw'
   NWCP: Lala va\?u 'claw'
OCEANIC PLANT NAMES

DARRELL TRYON

1. INTRODUCTION

Hancock and Henderson’s *Flora of the Solomon Islands* (1988) lists several thousand taxa reflecting the rich and varied flora of the Melanesian region. Similar compendia exist for Papua New Guinea, Vanuatu, Fiji and Polynesia, although less exhaustive than that recently produced for the Solomons Islands area. While botanically significant progress has been made with plant identification, unfortunately linguistic research still lags behind in this domain, in spite of the very considerable lexical reconstruction projects undertaken over a lengthy period, by Blust, Geraghty, Ross and Biggs in particular, for the area covered by the Oceanic subgroup of Austronesian. One of the greatest problems in this regard is that only the most important botanical items have until now been recorded as part of field research. It seems that a practical resolution of the problem calls for collaborative studies by botanists and linguists, as ethnobotanists are a very rare species themselves.

In this paper I have chosen some sixty flora terms reflecting flora for which higher level lexical reconstructions exist within the Oceanic subgroup. The flora in question also exist in island Southeast Asia, and so might be expected in most cases to yield reconstructions for higher level extra-Oceanic subgroups, Proto Austronesian or at least Proto Malayo-Polynesian.

For each flora term, the scientific name is given first, and the list ordered alphabetically on this basis. Where possible, popular or common names are also given for trees, plants, etc., together with an indication of the principal use to which each taxon is put. The point of this is twofold: firstly to indicate the broad cultural relevance of the flora discussed, and secondly to give further clues to the linguistic identification of some of the lesser known items in areas where they are not well known from the literature.

Each item also includes lexical reconstructions, ordered broadly from highest to lowest, each followed by the source for each form, together with the definition listed in that source. (Chowning’s (1963) PMN, Proto Melanesian, is not today recognised as a genetic subgroup, although it was presumably intended to cover the same languages as the Oceanic subgroup.) A range of reflexes from a broad spectrum of Oceanic languages is given where available, targeting especially those items for which no higher level Oceanic reconstruction exists at present, in the hope of stimulating research to fill the gaps.

Questions of continuity versus innovation and change, problems of multiple reconstructions for a single item, and the geographical distribution of reflexes are raised at
the end of the paper, as are some of the cultural details of the life of the early Oceanic Austronesians, especially in terms of diet.

ABBREVIATIONS

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**COMPARATIVE TABLE OF SYMBOLS USED IN AUSTRONESEAN RECONSTRUCTIONS**

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| Wolff  | PAN nD p b  |
| Blust  | PEMP nD p b  |
| Grace  | POC nD p b  |
| Ross   | POC nD p b  |
| Geraghty | PEO nD p b  |
| Geraghty | PSS nD p b  |
| Levy   | PML nD p b  |
| Geraghty | PPN nD p b  |

| Dempwolff | PAN k g  |
| Dyen   | PAN k g  |
| Wolff  | PAN k g  |
| Blust  | PEMP k g  |
| Grace  | POC k g  |
| Ross   | POC k g  |
| Geraghty | PEO k g  |
| Geraghty | PSS k g  |
| Levy   | PML k g  |
| Geraghty | PPN k g  |

---

Dempwolff UIN: p, b, mp, mb, t, t, nt, nd
Dyen PAN: p, b, mp, mb, c, t, t, nt, nd
Wolff PAN: p, b, mp, mb, t, t, - nt, -
Blust PEMP: p, b, mb, t, nt, nd
Grace POC: p, mp, ṭp, t, nt, nd
Ross POC: p, p, b, bw, t, d, dr
Geraghty PEO: v, p, b, pw, bw, t, nt, nr
Geraghty PSS: v, p, b, pw, bw, t, d
Levy PML: f, b, ø, d
Geraghty PPN: f, p, t, l-, -r

Dempwolff UIN: nd, d, d, l, t', k', d', g', n't', n'k', n'g', n'd'
Dyen PAN: nd, d, D, l, t', k', d', g', n't', n'k', n'g', n'd'
Wolff PAN: nd, d, D, l, t', k', d', g', n't', n'k', n'g', n'd'
Blust PEMP: nd, d, D, l, t', k', d', g', n't', n'k', n'g', n'd'
Grace POC: nd, d, l, t', k', d', g', n't', n'k', n'g', n'd'
Ross POC: dr, r, s, c, j, j
Geraghty PEO: dr, r, s, c, j, j
Geraghty PSS: dr, r, s, c, j, j
Levy PML: dr, r, s, t
Geraghty PPN: l-, r, s-, -h, s, t, s
2. OCEANIC PLANT NAMES

1. *Acacia spirobis* (Wattle, Barrel Tree)

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2. *Adenanthera pavonina* (Bead Tree: wood for house posts, red seeds for necklaces; bark used in leprosy treatment.)

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3. *Alocasia macrorrhiza* (Elephant-ear Taro: food staple; stem sap used for treating cuts)

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2. Note that for Blust a PAN reconstruction requires at least one Formosan and one non-Formosan witness. Wolff's PAN reconstructions, however, often have no Formosan witness, as he considers that Formosa (Taiwan) was a colonised area.
4. *Antiaris toxicaria*

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<td>tree with juice causing sores a tree</td>
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5. *Areca catechu* (Betel palm/nut: mild narcotic; used also to treat conjunctivitis, diarrhoea)

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7. *Bambusa* sp. (Bamboo)

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8. **Barringtonia** spp. (Cut Nut; edible nuts; some species used as fish poison; used also in treatment of gonorrhoea and hepatitis)

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<td>tree sp.</td>
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<td>French-Wright (1983)</td>
<td>Barringtonia sp.</td>
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<td>Clark (1986)</td>
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</tr>
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<td>Clark (1986)</td>
<td>B. asiatica</td>
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<td>puto</td>
<td>Barringtonia</td>
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</tr>
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<td>vutun</td>
<td>B. speciosa</td>
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<td>B. edulis</td>
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<tr>
<td>ARO</td>
<td>hara</td>
<td>B. edulis</td>
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</tr>
<tr>
<td>KAH</td>
<td>hara</td>
<td>cut nut</td>
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<tr>
<td>MTA</td>
<td>vele</td>
<td>B. edulis</td>
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9. **Bischofia javanica** (Java Cedar; hardwood; used for house posts)

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<th>Common Name</th>
<th>Local Name</th>
<th>Origin</th>
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<td>Clark (1986)</td>
<td>tree sp.</td>
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<td>*koka</td>
<td>Biggs (n.d.)</td>
<td>B. javanica</td>
</tr>
<tr>
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<td>purukoa</td>
<td>B. javanica</td>
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</tr>
<tr>
<td>FIJ(E)</td>
<td>koka damu</td>
<td>a plant: B. javanica</td>
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</tr>
<tr>
<td>TON</td>
<td>koka</td>
<td>tree with reddish wood: B. javanica</td>
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</table>

10. **Calophyllum inophyllum** (shoreline tree; used for carving)

<table>
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<th>Origin</th>
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<td>C. inophyllum</td>
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<td>Blust (1980a)</td>
<td>C. inophyllum</td>
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<td>Ross (pers.comm.)</td>
<td>Calophyllum sp.</td>
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<td>PWZ</td>
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<td>Calophyllum</td>
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<tr>
<td>LON</td>
<td>pitow</td>
<td>shore tree, C. inophyllum</td>
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</table>
11. Canarium indicum (Canarium almond, galip nut, pili nut)

| PAN  | *kanari                  | Pawley & Green (1973) | Canarium                                   |
| POC  | *kaŋari                | Pawley & Green (1973) | Canarium                                   |
| POC  | *kaŋari                 | French-Wright (1983)  | Canarium almond                            |
| PMN  | *kaŋari               | Chowning (1963)       | Canarium almond                            |
| PEO  | ?kaŋari                | Geraghty (1990)       | C. indicum                                 |
| PSS  | *gali                  | Levy (1980)           | almond tree                                |
| PNCV | ?ŋai                   | Clark (1986)          | Canarium almond                            |
| PSV  | *na-ŋai               | Lynch (1978c)         | almond tree                                |
| PPN  | *makari               | Biggs (n.d.)          | tree sp.                                   |
| YAB  | kaŋa                  |                       | Canarium almond                            |
| MDR  | kōpor                 |                       | Canarium almond                            |
| GED  | kaŋaz                 |                       | Canarium almond                            |
| TOM  | kaŋali                |                       | Canarium almond                            |
| GEL  | ŋali                  |                       | Canarium                                   |
| ARO  | ŋari                  |                       | Canarium tree                              |
| NGU  | naŋai                 |                       | almond                                     |
| TON  | makai                 |                       | C. samoense                                |
| SAM  | maŋali              |                       | C. samoense                                |

12. Casuarina equisetifolia (South Sea Ironwood)

| PAN  | *aRuSu                  | Pawley & Green (1973) | casuarina                                   |
| PAN  | *qaghuq                | Wolff (this volume)   | C. equisetifolia                            |
| POC  | *aRu                  | Blust (1972c)         | casuarina                                   |
| POC  | *yaRu                | Ross (n.d.)           | casuarina                                   |
| PMN  | *yaru               | Chowning (1963)       | casuarina                                   |
| PCN  | *ial                  | Ross (1985)           | casuarina                                   |
| PEO  | *yaRu                | Geraghty (1983)       | casuarina sp.                               |
| PSS  | *a (l,r)u            | Levy (1980)           | casuarina sp.                               |
13. *Ceiba pentandra* (Kapok Tree)

| PMP  | *kapuk*   | Blust (1986)       | kapok tree, *C. pentandra* |
| PMP  | *kabu*    | Blust (1986)       | kapok tree                  |
| TOL  | kapup     |                   | tree species                |
| NAK  | kapuku    |                   | kapok                       |

14. *Cerbera* spp. (leaves used to relieve aches and pains; crushed seeds used to stun fish)

| GED  | safa      |                    | *C. manghas*               |
| SML  | hata      |                   | tree with hard wood        |
| ARO  | hata      |                   | large tree sp.              |
| FIJ(E)| vasa      |                    | *C. odollam*               |
| EUV  | faha      |                   | variety of pandanus        |
| SAM  | fasa      |                   | variety of pandanus        |

15. *Cinnamomum* sp. (Cinnamon Tree)

| POC  | *mansoku* | Blust (1972c)     | tree sp.                     |
| MUS  | mosou     |                   | cinnamon tree               |
| LOU  | moso      |                   | *C. xanthoneuron*           |
| BLN  | mwasow    |                   | cinnamon tree               |


| PAN  | *limaw*   | Dyen (1953b)      | citrus, lemon               |
| PAN  | *limau*   | Wolff (this volume) | citrus                      |
| PMP  | *muntay*  | Blust (1980a)     | citrus, lemon               |
| POC  | *moli*    | Chowning (1963)   | lemon, citrus                |
| POC  | *molis*   | Ross (pers.comm.) | citrus                      |
| PNCV | *mwoloi*  | Clark (1986)      | citrus, orange              |
| PPN  | *moli*    | Biggs (n.d.)      | citrus (fruit)              |
| MAN  | *moli*    |                   | wild lime                   |
| TOL  | mali      |                   | citrus fruit                |
| ARO  | moli      |                   | wild orange                 |
| NGU  | namwoli   |                   | citrus                      |
| FIJ(E)| moli      |                   | citrus fruit                |

17. *Cocos nucifera* (Coconut)

<p>| PAN  | <em>niyuR</em>   | Dyen (1949)       | coconut                      |
| POC  | <em>niyuR</em>   | Blust (1978b)     | coconut                      |
| PMN  | <em>niul</em>    | Chowning (1963)   | coconut                      |
| PNS  | <em>niur(u)</em> | Ross (1985)       | coconut                      |</p>
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18. *Colocasia esculenta* (Taro sp.)

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<td>Chowning (1963)</td>
<td>taro sp.</td>
</tr>
<tr>
<td>PWZ</td>
<td>*mavo</td>
<td>Ross (1985)</td>
<td>taro sp.</td>
</tr>
<tr>
<td>PPN</td>
<td>*mavo</td>
<td>Biggs (n.d.)</td>
<td>taro pounded for food</td>
</tr>
<tr>
<td>MTU</td>
<td>maho</td>
<td></td>
<td>long yam</td>
</tr>
<tr>
<td>NAK</td>
<td>mavo</td>
<td></td>
<td>taro (gen.)</td>
</tr>
<tr>
<td>LON</td>
<td>mah</td>
<td></td>
<td>taro variety</td>
</tr>
<tr>
<td>KIA</td>
<td>mahu</td>
<td></td>
<td>taro</td>
</tr>
<tr>
<td>MAR</td>
<td>ma?u</td>
<td></td>
<td><em>Colocasia esculenta</em></td>
</tr>
<tr>
<td>PNCV</td>
<td>*bweta</td>
<td>Clark (1986)</td>
<td>taro sp.</td>
</tr>
<tr>
<td>MTA</td>
<td>kpweta</td>
<td></td>
<td>*Colocasia esculentum</td>
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<tr>
<td>TGO</td>
<td>peta</td>
<td></td>
<td>taro</td>
</tr>
<tr>
<td>RAG</td>
<td>bweta</td>
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<td>taro</td>
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(see also Item 24: *Cyrtosperma* sp.)
19. *Convolvulus* sp.

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<td>pers.comm.</td>
<td>creeper</td>
</tr>
<tr>
<td>PEO</td>
<td><em>vuRe</em> Geraghty</td>
<td>(1990)</td>
<td>shore creeper</td>
</tr>
<tr>
<td>PSS</td>
<td><em>vule</em> Geraghty</td>
<td>(1990)</td>
<td>shore creeper, <em>Convolvulus</em></td>
</tr>
<tr>
<td>PNCV</td>
<td><em>vue</em> Clark</td>
<td>(1986)</td>
<td>shore plant</td>
</tr>
<tr>
<td>PCP</td>
<td><em>vue</em> Geraghty</td>
<td>(1990)</td>
<td>shore creeper</td>
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<tr>
<td>PPN</td>
<td><em>vue</em> Biggs</td>
<td>(n.d.)</td>
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<td><em>vule</em></td>
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<td></td>
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<td>LAU</td>
<td><em>fulefule</em></td>
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<td>creeper on the shore</td>
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<tr>
<td>PAA</td>
<td><em>huehue</em></td>
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<td>sand grass</td>
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<tr>
<td>TON</td>
<td><em>fue</em></td>
<td></td>
<td>creeper</td>
</tr>
<tr>
<td>TAH</td>
<td><em>hue</em></td>
<td></td>
<td>gourd</td>
</tr>
<tr>
<td>HAW</td>
<td><em>hue</em></td>
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<td>gourd</td>
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20. *Cordyline* spp. (Ti plant; victory leaves)

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<td>(1983-84a)</td>
<td>tree sp.</td>
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<td><em>jiRi</em> Ross</td>
<td>(1988)</td>
<td><em>Cordyline</em></td>
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<tr>
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<td><em>dili</em> Chowning</td>
<td>(1963)</td>
<td>croton sp.</td>
</tr>
<tr>
<td>PNS</td>
<td><em>jiri</em> Ross</td>
<td>(1985)</td>
<td><em>Cordyline</em></td>
</tr>
<tr>
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<td><em>jiRi</em> Geraghty</td>
<td>(1990)</td>
<td><em>Cordyline</em></td>
</tr>
<tr>
<td>PSS</td>
<td><em>dili</em> Levy</td>
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<td><em>digV</em> Geraghty</td>
<td>(1986)</td>
<td><em>Cordyline</em> sp.</td>
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<td>(n.d.)</td>
<td><em>Cordyline</em> sp.</td>
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<td><em>sir</em></td>
<td></td>
<td>grass skirt</td>
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<td>KAI</td>
<td><em>jir</em></td>
<td></td>
<td>small pandanus</td>
</tr>
<tr>
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<td><em>dili</em></td>
<td></td>
<td><em>C. fruticosa</em></td>
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<td>ARO</td>
<td><em>diri</em></td>
<td></td>
<td><em>Dracaena</em></td>
</tr>
<tr>
<td>TON</td>
<td><em>sii</em></td>
<td></td>
<td><em>C. terminalis</em></td>
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<td><em>Cordyline</em> sp.</td>
</tr>
<tr>
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<td>Clark</td>
<td><em>Cordyline</em> sp.</td>
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<tr>
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<td>Geraghty</td>
<td><em>Cordyline</em> sp.</td>
</tr>
<tr>
<td>MTA</td>
<td><em>karia</em></td>
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<td><em>Dracaena</em></td>
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<td><em>garia</em></td>
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<td><em>Dracaena</em></td>
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<td>ŋgai</td>
<td></td>
<td><em>Cordyline</em></td>
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21. *Curcuma* sp. (Turmeric: leaves used to treat coughs, sore throat)

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<th>Source</th>
<th>Description</th>
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<tr>
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<td>(1938)</td>
<td>name of a plant</td>
</tr>
<tr>
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<td>(1983)</td>
<td>turmeric</td>
</tr>
<tr>
<td>PPN</td>
<td><em>reŋa</em> Biggs</td>
<td>(n.d.)</td>
<td>turmeric</td>
</tr>
<tr>
<td>LOH</td>
<td>ɘg</td>
<td></td>
<td>turmeric</td>
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<tr>
<td>MTA</td>
<td><em>reŋa</em></td>
<td></td>
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<td><em>reŋa</em></td>
<td></td>
<td>turmeric</td>
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<td>ɾeŋa</td>
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<tr>
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<td></td>
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<tr>
<td>HAW</td>
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### OCEANIC PLANT NAMES

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<td>French-Wright (1983)</td>
<td>turmeric, <em>C. longa</em></td>
</tr>
<tr>
<td>POC</td>
<td>*(y)ago</td>
<td>Clark (1986)</td>
<td>turmeric, yellow</td>
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<tr>
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<td>*yago</td>
<td>Geraghty (1990)</td>
<td>turmeric</td>
</tr>
<tr>
<td>PNCV</td>
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<td>Clark (1986)</td>
<td>turmeric, yellow</td>
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<td>Geraghty (1990)</td>
<td>turmeric</td>
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<tr>
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<td>Biggs (n.d.)</td>
<td>turmeric</td>
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<tr>
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<td>yan</td>
<td></td>
<td>ginger</td>
</tr>
<tr>
<td>ROV</td>
<td>ago</td>
<td></td>
<td>plant, <em>Curcuma sp.</em></td>
</tr>
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<td>ago</td>
<td></td>
<td>turmeric</td>
</tr>
<tr>
<td>LEW</td>
<td>puruyo</td>
<td></td>
<td>herb ginger</td>
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<tr>
<td>REN</td>
<td>ago</td>
<td></td>
<td>turmeric</td>
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<tr>
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<td>δaço</td>
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<td>turmeric, <em>C. longa</em></td>
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#### 22. Cucurbitaceae (Gourds and Melons)

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<th>Author</th>
<th>Description</th>
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<tr>
<td>PAN</td>
<td>*timun</td>
<td>Blust (1972c)</td>
<td>cucumber, melon</td>
</tr>
<tr>
<td>PMP</td>
<td>*timun</td>
<td>Dempwolff (1938)</td>
<td>melon, cucumber</td>
</tr>
<tr>
<td>POC</td>
<td>*tim (o,u)</td>
<td>Blust (1972c)</td>
<td>cucumber, melon</td>
</tr>
<tr>
<td>POC</td>
<td>*katimun</td>
<td>Ross (n.d.)</td>
<td>cucumber</td>
</tr>
<tr>
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<td>Biggs (n.d.)</td>
<td>a plant (cucurbit)</td>
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<td><em>Cucumis acidus</em></td>
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<td>gourd sp.</td>
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<td>gourd sp.</td>
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<td>gourd</td>
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<tr>
<td>FIJ(E)</td>
<td>tavaya</td>
<td></td>
<td>bottle</td>
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#### 23. Cycas rumphii (Cycad Palm, Malayan Palm Fern, peace leaves; starch source; used in the treatment of yaws and stomach ailments)

<table>
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<th>Name</th>
<th>Author</th>
<th>Description</th>
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<tbody>
<tr>
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<td>Clark (1986)</td>
<td>Cycad palm, <em>C. circinalis</em></td>
</tr>
<tr>
<td>MTA</td>
<td>mwele</td>
<td></td>
<td><em>Cycas</em></td>
</tr>
<tr>
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<td>mail</td>
<td></td>
<td><em>Cycas</em></td>
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<tr>
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<td>namwele</td>
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<td><em>Cycas</em></td>
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<td>Ross (pers.comm.)</td>
<td>Cycad palm</td>
</tr>
<tr>
<td>TOL</td>
<td>baibai</td>
<td></td>
<td>arborescent fern</td>
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<tr>
<td>LAU</td>
<td>baibai</td>
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<td>Cycad</td>
</tr>
<tr>
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<td>baibai</td>
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<td>Cycad</td>
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#### 24. Cyrtosperma sp. (Swamp Taro)

<table>
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<th>Name</th>
<th>Author</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
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<td>*(m)pulaka</td>
<td>French-Wright (1983)</td>
<td>taro sp.</td>
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<tr>
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<td>*buRaka</td>
<td>Geraghty (1990)</td>
<td>swamp taro</td>
</tr>
<tr>
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<td>*pwulaka</td>
<td>Geraghty (1990)</td>
<td>swamp taro</td>
</tr>
<tr>
<td>PNCV</td>
<td>*buǎga</td>
<td>Clark (1986)</td>
<td>swamp taro</td>
</tr>
<tr>
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<td>pulaka</td>
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<td>wild arrowroot</td>
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<td>fuula</td>
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<td>taro</td>
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<tr>
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<td>puaka</td>
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<td>water taro</td>
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25. **Derris sp. (Fish Poison Plant)**

<table>
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<th>Symbol</th>
<th>Author</th>
<th>Notes</th>
</tr>
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<td></td>
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<td>*tua</td>
<td></td>
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<td>derris root</td>
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<tr>
<td>MTA</td>
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<td>creeping plant used to poison fish</td>
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<table>
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<th>Symbol</th>
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<th>Notes</th>
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<td>Dyen (1953b)</td>
<td>yam sp.</td>
</tr>
<tr>
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<td>Wolff (this volume)</td>
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<tr>
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<td>Pawley &amp; Green (1973)</td>
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<td>yam sp.</td>
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<td>long yam</td>
</tr>
<tr>
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<td>yam</td>
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<td>uhi</td>
<td></td>
<td>yam</td>
</tr>
<tr>
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<td>yui</td>
<td></td>
<td>yam generic</td>
</tr>
<tr>
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<td>uvi</td>
<td></td>
<td><em>D. alata</em></td>
</tr>
<tr>
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<td>?ufi</td>
<td></td>
<td><em>D. alata</em></td>
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<td>Dempwolff (1926)</td>
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<td>*CamV</td>
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<td>yam sp.</td>
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<tr>
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<td>yam sp.</td>
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<td>yam</td>
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<td>wild yam sp.</td>
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27. **Dracontomelum sp. (New Guinea Walnut)**

<table>
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<th>Symbol</th>
<th>Author</th>
<th>Notes</th>
</tr>
</thead>
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<tr>
<td>PAN</td>
<td>*daqu</td>
<td>Blust (1986)</td>
<td><em>D. edule</em></td>
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<td>PEO</td>
<td>*ra (q)u</td>
<td>Geraghty (1990)</td>
<td>tree sp.</td>
</tr>
<tr>
<td>PNCV</td>
<td>*rau</td>
<td>Clark (1986)</td>
<td><em>D. vitiense</em></td>
</tr>
<tr>
<td>TOL</td>
<td>laup</td>
<td></td>
<td>tree sp.</td>
</tr>
<tr>
<td>MTA</td>
<td>rau</td>
<td></td>
<td>a fruit tree</td>
</tr>
<tr>
<td>Code</td>
<td>Name</td>
<td>Meaning</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>PAA</td>
<td>alau</td>
<td>Dragon plum</td>
<td></td>
</tr>
<tr>
<td>LEW</td>
<td>purlu</td>
<td>Dragon plum, (D. vitiense)</td>
<td></td>
</tr>
<tr>
<td>NGU</td>
<td>narau</td>
<td>(D. vitiense)</td>
<td></td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>tarau</td>
<td>(D. vitiense)</td>
<td></td>
</tr>
</tbody>
</table>

28. *Erythrina indica* (Coral Tree: used for fence posts; edible leaves)

<table>
<thead>
<tr>
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<th>Name</th>
<th>Author</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMP</td>
<td>*DapDap</td>
<td>Blust (1986)</td>
<td>a tree: (Erythrina) sp.</td>
</tr>
<tr>
<td>PMP</td>
<td>*DeDap</td>
<td>Blust (1986)</td>
<td>a tree: (Erythrina) sp.</td>
</tr>
<tr>
<td>POC</td>
<td>*dada</td>
<td>Blust (1972c)</td>
<td>coral tree</td>
</tr>
<tr>
<td>POC</td>
<td>*rara (p)</td>
<td>Ross (pers.comm.)</td>
<td>coral tree</td>
</tr>
<tr>
<td>PMN</td>
<td>*rara</td>
<td>Chowning (1963)</td>
<td>coral tree</td>
</tr>
<tr>
<td>PSS</td>
<td>*rara</td>
<td>Levy (1980)</td>
<td>tree sp.</td>
</tr>
<tr>
<td>PEO</td>
<td>*rara</td>
<td>Geraghty (1990)</td>
<td>(Erythrina)</td>
</tr>
<tr>
<td>PNCV</td>
<td>*rara</td>
<td>Clark (1986)</td>
<td>tree sp.</td>
</tr>
<tr>
<td>PNCV</td>
<td>*rara</td>
<td>Clark (1986)</td>
<td>tree sp.</td>
</tr>
<tr>
<td>PPN</td>
<td>*lala</td>
<td>Biggs (n.d.)</td>
<td>tree: (Vitex) sp.</td>
</tr>
<tr>
<td>ROV</td>
<td>raporapo</td>
<td>-</td>
<td>(Erythrina) sp.</td>
</tr>
<tr>
<td>GEL</td>
<td>rara</td>
<td>-</td>
<td>(Erythrina)</td>
</tr>
<tr>
<td>ARO</td>
<td>rara</td>
<td>-</td>
<td>(E. indica)</td>
</tr>
<tr>
<td>MTA</td>
<td>rara</td>
<td>-</td>
<td>(Erythrina), coral tree</td>
</tr>
<tr>
<td>LNW</td>
<td>raa</td>
<td>-</td>
<td>blood-tree</td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>rara</td>
<td>-</td>
<td>(E. indica)</td>
</tr>
<tr>
<td>TON</td>
<td>lala</td>
<td>-</td>
<td>tree: (Vitex) sp.</td>
</tr>
</tbody>
</table>

29. *Eugenia malaccensis/Syzygium malaccensis* (Malay Apple/Rose Apple: used as an abortifacient)

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Author</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC</td>
<td>*kapika</td>
<td>Grace (1969)</td>
<td>Malay apple</td>
</tr>
<tr>
<td>PMN</td>
<td>*kavika</td>
<td>Chowning (1963)</td>
<td>Malay apple</td>
</tr>
<tr>
<td>PWZ</td>
<td>*kavika</td>
<td>Ross (1985)</td>
<td>Malay apple</td>
</tr>
<tr>
<td>PPN</td>
<td>*kafika</td>
<td>Biggs (n.d.)</td>
<td>a tree, Malay apple</td>
</tr>
<tr>
<td>TMI</td>
<td>kapig</td>
<td>-</td>
<td>Indian rose apple</td>
</tr>
<tr>
<td>NAK</td>
<td>gaiva</td>
<td>-</td>
<td>Malay apple tree</td>
</tr>
<tr>
<td>GEL</td>
<td>yaviya</td>
<td>-</td>
<td>Malay apple</td>
</tr>
<tr>
<td>KWO</td>
<td>?afi?a</td>
<td>-</td>
<td>Malay apple</td>
</tr>
<tr>
<td>MTA</td>
<td>yaviya</td>
<td>-</td>
<td>Malay apple</td>
</tr>
<tr>
<td>LEW</td>
<td>kauka</td>
<td>-</td>
<td>Malay apple</td>
</tr>
<tr>
<td>ROT</td>
<td>hahi?a</td>
<td>-</td>
<td>Malay apple</td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>kavika</td>
<td>-</td>
<td>Malay apple</td>
</tr>
<tr>
<td>TON</td>
<td>fekika</td>
<td>-</td>
<td>Malay apple</td>
</tr>
</tbody>
</table>

30. *Ficus* spp. (edible leaves, some species: used in treatment of stings)

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Author</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMP</td>
<td>*nunuk</td>
<td>Blust (1983-84a)</td>
<td>a tree, the banyan</td>
</tr>
<tr>
<td>TOL</td>
<td>nunu</td>
<td>-</td>
<td>banyan tree, (F. religiosa)</td>
</tr>
<tr>
<td>LKU</td>
<td>nun</td>
<td>-</td>
<td>banyan</td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>nunu</td>
<td>-</td>
<td>fig tree sp., (F. vitiensis)</td>
</tr>
<tr>
<td>PAN</td>
<td>*zabi</td>
<td>Blust (1972c)</td>
<td>(Ficus) sp.</td>
</tr>
<tr>
<td>POC</td>
<td>*sapi (rewa)</td>
<td>Blust (1972c)</td>
<td>(Ficus) sp.</td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>savirewa</td>
<td>-</td>
<td>a tree, (F. tinctoria)</td>
</tr>
<tr>
<td>Code</td>
<td>Term</td>
<td>Source</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>PPN</td>
<td>*qaoa</td>
<td>Biggs (n.d.)</td>
<td>banyan tree, <em>Ficus</em> sp.</td>
</tr>
<tr>
<td>ROV</td>
<td>kalala</td>
<td></td>
<td>banyan, <em>Ficus</em> sp.</td>
</tr>
<tr>
<td>TON</td>
<td>?ovava</td>
<td></td>
<td>banyan tree</td>
</tr>
<tr>
<td>POC</td>
<td>*nmaka</td>
<td>Clark (1986)</td>
<td><em>F. bengalensis</em></td>
</tr>
<tr>
<td>PNCV</td>
<td>*banga</td>
<td>Clark (1986)</td>
<td><em>F. bengalensis</em></td>
</tr>
<tr>
<td>MTA</td>
<td>paka</td>
<td></td>
<td>banyan</td>
</tr>
<tr>
<td>LNW</td>
<td>bak</td>
<td></td>
<td>banyan</td>
</tr>
<tr>
<td>SEA</td>
<td>veak</td>
<td></td>
<td>banyan</td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>baka</td>
<td></td>
<td>banyan tree, <em>F. obliqua</em></td>
</tr>
</tbody>
</table>

31. *Heliconia* sp. (herbaceous plant)

<table>
<thead>
<tr>
<th>Code</th>
<th>Term</th>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC</td>
<td>*pao</td>
<td>Clark (1986)</td>
<td>plant sp.</td>
</tr>
<tr>
<td>PNCV</td>
<td>*vao</td>
<td>Clark (1986)</td>
<td>plant sp.</td>
</tr>
<tr>
<td>GEL</td>
<td>vaovao</td>
<td>Clark (1986)</td>
<td>shrub with large leaves</td>
</tr>
<tr>
<td>MTA</td>
<td>vao</td>
<td></td>
<td>a heliconium</td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>vao</td>
<td></td>
<td>a plant, <em>Bleekeria elliptica</em></td>
</tr>
</tbody>
</table>

32. *Hernandia peltata* (Sea Hearse, Lantern Tree: used for canoe building)

<table>
<thead>
<tr>
<th>Code</th>
<th>Term</th>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEO</td>
<td>*biRibiRi</td>
<td>Geraghty (1990)</td>
<td>shore tree, <em>H. peltata</em></td>
</tr>
<tr>
<td>PMC</td>
<td>*pigipigi</td>
<td>Geraghty (1990)</td>
<td>shore tree</td>
</tr>
<tr>
<td>PSS</td>
<td>*bilibili</td>
<td>Levy (1980)</td>
<td>shore tree</td>
</tr>
<tr>
<td>PNCV</td>
<td>*biribiri</td>
<td>Clark (1986)</td>
<td>tree sp., <em>H. peltata</em></td>
</tr>
<tr>
<td>PPN</td>
<td>*pipi</td>
<td>Clark (1986)</td>
<td>tree sp., <em>Hernandia</em> sp.</td>
</tr>
<tr>
<td>TOL</td>
<td>palubir</td>
<td></td>
<td><em>Hernandia</em></td>
</tr>
<tr>
<td>GEL</td>
<td>bibili</td>
<td></td>
<td>sp. of tree</td>
</tr>
<tr>
<td>LAU</td>
<td>bilibili</td>
<td></td>
<td><em>Thespesia populnea</em></td>
</tr>
<tr>
<td>MTA</td>
<td>pirpir</td>
<td></td>
<td>a tree</td>
</tr>
<tr>
<td>PAA</td>
<td>virvir</td>
<td></td>
<td><em>H. peltata</em></td>
</tr>
<tr>
<td>LEW</td>
<td>purpelpele</td>
<td></td>
<td><em>H. peltata</em></td>
</tr>
<tr>
<td>TON</td>
<td>pipi</td>
<td></td>
<td>tree with inedible fruit whose kernel is used for scenting oil</td>
</tr>
</tbody>
</table>

33. *Hernandia* sp.

<table>
<thead>
<tr>
<th>Code</th>
<th>Term</th>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEO</td>
<td>*puka</td>
<td>Geraghty (1990)</td>
<td><em>H. pisonia</em></td>
</tr>
<tr>
<td>PNCV</td>
<td>*buka</td>
<td>Clark (1986)</td>
<td><em>Pisonia</em></td>
</tr>
<tr>
<td>PPN</td>
<td>*puka</td>
<td>Biggs (n.d.)</td>
<td>a tree, <em>H. pisonia</em></td>
</tr>
<tr>
<td>ROV</td>
<td>bakabaka</td>
<td></td>
<td><em>H. peltata</em></td>
</tr>
<tr>
<td>NMK</td>
<td>bik</td>
<td></td>
<td><em>Pisonia</em> or <em>Hernandia</em></td>
</tr>
<tr>
<td>NGU</td>
<td>napuka</td>
<td></td>
<td><em>Gyrocarpus americanus</em></td>
</tr>
</tbody>
</table>

34. *Hibiscus manihot* (*Abelmoschus manihot*) (Hibiscus Cabbage, Slippery Cabbage)

<table>
<thead>
<tr>
<th>Code</th>
<th>Term</th>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC</td>
<td>*mpiele</td>
<td>French-Wright (1983)</td>
<td>shrub, hibiscus sp.</td>
</tr>
<tr>
<td>PCP</td>
<td>*bele</td>
<td>Geraghty (1990)</td>
<td><em>H. manihot</em></td>
</tr>
<tr>
<td>PPN</td>
<td>*pele</td>
<td>Biggs (n.d.)</td>
<td><em>H. manihot</em></td>
</tr>
<tr>
<td>GED</td>
<td>bel</td>
<td></td>
<td>shrub like the croton with aromatic dark green leaves</td>
</tr>
<tr>
<td>FIJ(W)</td>
<td>bele</td>
<td></td>
<td><em>H. manihot</em></td>
</tr>
<tr>
<td>TON</td>
<td>pele</td>
<td></td>
<td><em>Abelmoschus manihot</em></td>
</tr>
</tbody>
</table>
35. **Hibiscus tiliaceus** (Cottonwood, Beach Hibiscus, Burao: bark fibre used for manufacture of rope, cordage, baskets, mats)

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Reference</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC</td>
<td>*paRu</td>
<td>Ross (pers.comm.)</td>
<td>H. tiliaceus</td>
</tr>
<tr>
<td>PEO</td>
<td>*vaRu</td>
<td>Geraghty (1990)</td>
<td>H. tiliaceus</td>
</tr>
<tr>
<td>PMC</td>
<td>*kili-fau</td>
<td>Geraghty (1990)</td>
<td>tree sp.</td>
</tr>
<tr>
<td>PSS</td>
<td>*valu</td>
<td>Levy (1980)</td>
<td>tree sp.</td>
</tr>
<tr>
<td>PNCV</td>
<td>*va (R)u</td>
<td>Clark (1986)</td>
<td>H. tiliaceus</td>
</tr>
<tr>
<td>PCP</td>
<td>*vau</td>
<td>Geraghty (1990)</td>
<td>tree sp.</td>
</tr>
<tr>
<td>PPN</td>
<td>*fau</td>
<td>Geraghty (1990)</td>
<td>H. tiliaceus</td>
</tr>
<tr>
<td>GIT</td>
<td>paru</td>
<td></td>
<td>hibiscus</td>
</tr>
<tr>
<td>ROV</td>
<td>varu</td>
<td></td>
<td>H. tiliaceus</td>
</tr>
<tr>
<td>GEL</td>
<td>valu</td>
<td></td>
<td>H. tiliaceus</td>
</tr>
<tr>
<td>ARO</td>
<td>haru</td>
<td></td>
<td>kind of tree</td>
</tr>
<tr>
<td>MTA</td>
<td>varu</td>
<td></td>
<td>H. tiliaceus</td>
</tr>
<tr>
<td>LNW</td>
<td>bal</td>
<td></td>
<td>hibiscus</td>
</tr>
<tr>
<td>ROT</td>
<td>hau</td>
<td></td>
<td>hibiscus</td>
</tr>
<tr>
<td>FIJ(W)</td>
<td>vau</td>
<td></td>
<td>hibiscus spp.</td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>vau</td>
<td></td>
<td>H. tiliaceus</td>
</tr>
<tr>
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<td>*bwakala</td>
<td>Clark (1986)</td>
<td>hibiscus sp.</td>
</tr>
<tr>
<td>MTA</td>
<td>kpwayala</td>
<td></td>
<td>flowering hibiscus</td>
</tr>
<tr>
<td>RAG</td>
<td>bwayala</td>
<td></td>
<td>hibiscus</td>
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</tbody>
</table>

36. **Imperata cylindrica** (Kunai Grass, Plume Grass)

<table>
<thead>
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<th>Name</th>
<th>Reference</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
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<td>*Riaq</td>
<td>Blust (1986)</td>
<td>sword grass</td>
</tr>
<tr>
<td>PWMP</td>
<td>*eRiq</td>
<td>Blust (1986)</td>
<td>sword grass</td>
</tr>
<tr>
<td>POC</td>
<td>*Reqi</td>
<td>Ross (1988)</td>
<td>kunai grass</td>
</tr>
<tr>
<td>POC</td>
<td>*reyi</td>
<td>Ross (1985)</td>
<td>kunai grass</td>
</tr>
<tr>
<td>PEO</td>
<td>*Re?i</td>
<td>Geraghty (1990)</td>
<td>grass sp.</td>
</tr>
<tr>
<td>PMC</td>
<td>*reV</td>
<td>Geraghty (1990)</td>
<td>grass sp.</td>
</tr>
<tr>
<td>PSS</td>
<td>*lei</td>
<td>Levy (1980)</td>
<td>grass sp.</td>
</tr>
<tr>
<td>TAW</td>
<td>lei</td>
<td></td>
<td>kunai</td>
</tr>
<tr>
<td>MTU</td>
<td>rei</td>
<td></td>
<td>grass</td>
</tr>
<tr>
<td>GIT</td>
<td>rek</td>
<td></td>
<td>kunai</td>
</tr>
<tr>
<td>ROV</td>
<td>rekiti</td>
<td></td>
<td>I. arundinacea</td>
</tr>
<tr>
<td>ARO</td>
<td>rei</td>
<td></td>
<td>kunai</td>
</tr>
<tr>
<td>PMP</td>
<td>*guRun</td>
<td>Ross (n.d.)</td>
<td>I. cylindrica</td>
</tr>
<tr>
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<td>*kuRu (n)</td>
<td>Ross (n.d.)</td>
<td>I. cylindrica</td>
</tr>
<tr>
<td>PSS</td>
<td>*(gu)guru</td>
<td>Ross (pers.comm.)</td>
<td>grass</td>
</tr>
<tr>
<td>MTU</td>
<td>kurukuru</td>
<td></td>
<td>long grass used for thatching</td>
</tr>
<tr>
<td>DOU</td>
<td>?uru?uru</td>
<td></td>
<td>kunai</td>
</tr>
<tr>
<td>BGO</td>
<td>(gu)guru</td>
<td></td>
<td>grass</td>
</tr>
<tr>
<td>LAU</td>
<td>?oro?oro</td>
<td></td>
<td>weeds, grass</td>
</tr>
<tr>
<td>ARO</td>
<td>oraora</td>
<td></td>
<td>sp. of grass</td>
</tr>
</tbody>
</table>
37. *Inocarpus edulis* (Polynesian Chestnut, Tahitian Chestnut)

<table>
<thead>
<tr>
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<th>Name</th>
<th>Author</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAN *</td>
<td>*ipil</td>
<td>Pawley &amp; Green (1973)</td>
<td><em>Inocarpus</em> sp.</td>
</tr>
<tr>
<td>POC *</td>
<td>*ipi (l)</td>
<td>Pawley &amp; Green (1973)</td>
<td>Tahitian chestnut</td>
</tr>
<tr>
<td>POC *</td>
<td>*qipi</td>
<td>French-Wright (1983)</td>
<td>Tahitian chestnut</td>
</tr>
<tr>
<td>PMN *</td>
<td>*kivi</td>
<td>Chowning (1963)</td>
<td>Polynesian chestnut</td>
</tr>
<tr>
<td>PPN *</td>
<td>*ifi</td>
<td>Biggs (n.d.)</td>
<td>Tahitian chestnut</td>
</tr>
<tr>
<td>BWA</td>
<td>givi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBO</td>
<td>ivi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROT</td>
<td>?ifi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>ivi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TON</td>
<td>ifi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNCV *</td>
<td>*mwampwe</td>
<td>Clark (1986)</td>
<td>Tahitian chestnut</td>
</tr>
</tbody>
</table>

38. *Intsia bijuga* (Pacific Teak: hardwood tree, coastal, edible leaves; used for canoe hulls; bark used to treat urinary ailments)

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Author</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAN *</td>
<td>*teRas</td>
<td>Blust (1972c)</td>
<td>hardwood tree</td>
</tr>
<tr>
<td>POC *</td>
<td>*ntoRa</td>
<td>Blust (1972c)</td>
<td>hardwood</td>
</tr>
<tr>
<td>PEO *</td>
<td>*toRa</td>
<td>Geraghty (1990)</td>
<td><em>I. bijuga</em></td>
</tr>
<tr>
<td>PNCV *</td>
<td>*tora</td>
<td>Clark (1986)</td>
<td><em>I. bijuga</em></td>
</tr>
<tr>
<td>PNCV *</td>
<td>*to (Rr)</td>
<td>Clark (1986)</td>
<td><em>I. bijuga</em></td>
</tr>
<tr>
<td>PCP *</td>
<td>*toa</td>
<td>Geraghty (1990)</td>
<td><em>I. bijuga</em></td>
</tr>
<tr>
<td>PPN *</td>
<td>*toa</td>
<td>Biggs (n.d.)</td>
<td>tree sp., casuarina</td>
</tr>
<tr>
<td>LAU</td>
<td>ora</td>
<td></td>
<td>canoe built of planks sewn together</td>
</tr>
<tr>
<td>ARO</td>
<td>ora</td>
<td></td>
<td>sp. of tree from which the best canoes are made; plank-built canoe</td>
</tr>
<tr>
<td>MTA</td>
<td>tora</td>
<td></td>
<td>a timber tree</td>
</tr>
<tr>
<td>RAG</td>
<td>tora</td>
<td></td>
<td>high tree</td>
</tr>
<tr>
<td>ATC</td>
<td>tor</td>
<td></td>
<td>tree sp., used for canoes</td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>doa</td>
<td></td>
<td>heartwood of a tree, solid</td>
</tr>
<tr>
<td>TON</td>
<td>toa</td>
<td></td>
<td>casuarina or ironwood tree</td>
</tr>
<tr>
<td>REN</td>
<td>toa</td>
<td></td>
<td>ironwood</td>
</tr>
</tbody>
</table>

39. *Laportea* spp. (Stinging Nettle Tree)

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Author</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAN *</td>
<td>*latenj</td>
<td>Blust (1972c)</td>
<td>a tree, the stinging nettle</td>
</tr>
<tr>
<td>PAN *</td>
<td>*jalateng</td>
<td>Wolff (this volume)</td>
<td>nettle</td>
</tr>
<tr>
<td>POC *</td>
<td>*salato</td>
<td>Blust (1972c)</td>
<td><em>Laportea</em>, sharp</td>
</tr>
<tr>
<td>POC *</td>
<td>*salatonj</td>
<td>Clark (1986)</td>
<td>nettle tree</td>
</tr>
<tr>
<td>POC *</td>
<td>*jalatonj</td>
<td>Ross (1989b)</td>
<td>nettle tree</td>
</tr>
<tr>
<td>PEO *</td>
<td>*jalato</td>
<td>Geraghty (1983)</td>
<td>nettle tree</td>
</tr>
<tr>
<td>PNCV *</td>
<td>*galato</td>
<td>Clark (1986)</td>
<td>nettle tree</td>
</tr>
<tr>
<td>PPN *</td>
<td>*galato</td>
<td>Biggs (n.d.)</td>
<td>tree nettle, <em>Laportea</em></td>
</tr>
<tr>
<td>ARE</td>
<td>runurao</td>
<td></td>
<td>a nettle</td>
</tr>
<tr>
<td>ARO</td>
<td>darao</td>
<td></td>
<td>sp. of nettle</td>
</tr>
<tr>
<td>MTA</td>
<td>kalato</td>
<td></td>
<td>a nettle tree</td>
</tr>
<tr>
<td>RAG</td>
<td>galato</td>
<td></td>
<td>nettle tree</td>
</tr>
</tbody>
</table>
40. *Mangifera indica* (Mango)

- **PAN** *balunuq* Blust (1980a) type of mango
- **PWMP** *balunuq* Blust (1980a) mango sp.
- **PAN** *paSuq* Dyen & McFarland (1970) wild mango
- **POC** *pau (q)* Ross (pers.comm.) mango
- **PBV** *vau* Ross (1985) mango
- **PMP** *wai* Blust (1986) mango
- **POC** *waiwai* French-Wright (1983) mango
- **PMK** *wai* Chowning (1963) mango tree
- **MTU** vaivai wild mango sp.
- **BWA** waiobi pawpaw
- **NBM** wowai mango
- **ARE** arai mango
- **ARO** wawaibeo 1,000 mangoes

41. *Metroxylon* spp. (Sago Palm: leaves used for roof thatching)

- **PMP** *Rambia* Blust (1983-84a) sago palm
- **POC** *dampaia* French-Wright (1983) sago palm
- **POC** *labia* Ross (1985) sago palm
- **POC** *nabia* Ross (1988) sago palm
- **PMN** *labia* Chowning (1963) sago palm
- **PEO** *Rabia* Geraghty (1990) starch, arrowroot
- **PCP** *abia* Geraghty (1990) starch, arrowroot
- **MTU** rabia sago palm
- **BWA** labia sago palm
- **BOL** labia sago palm
- **NAK** labia sago palm
- **MTA** piai pith of sago
- **FIJ(E)** yabia arrowroot, starch
- **PAN** *qatep* Dyen (1953b) thatch
- **PMP** *qatep* Blust (1981c) thatch
- **POC** *qatop* French-Wright (1983) sago palm, thatch
- **PMN** *hato* Chowning (1963) sago palm
- **PNCV** *ato* Clark (1986) sago palm, thatch
- **PPN** *qato* Biggs (n.d.) thatch
- **MUY** loukwat sago-leaf thatch
- **NAK** hato sago palm; thatch
- **LOU** arop thatch
- **PET** atoh sago palm
- **GEL** ato sago palm; thatch
- **LAU** sao sago palm
- **ARO** ao sago palm
- **MTA** ota sago palm
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TGO  rato  sago palm
ATC  at  sago palm
TON  ?ato  thatch, roof
SAM  ato  thatch
MAO  ato  roof
PNCV  *takura  Clark (1986)  thatch, sago palm
MTA  tuwur  to thatch
LNW  tagoo  thatch leaf (palm)
PAA  takul  sago
NGU  natakura  thatch palm
FIJ(E)  ula  to thatch a house with grass

42. Morinda citrifolia (Indian Mulberry: red dyes from bark and roots; famine food)

PAN  *baŋkudu  Dempwolf (1938)  M. citrifolia
POC  *kurat  Geraghty (1983)  M. citrifolia
PNCV  *kura-ti  Clark (1986)  M. citrifolia
ROV  gurata  a plant
MTA  wura  Indian Mulberry tree
LEW  purkula  tree sp.
NGU  nakura

POC  *ñońum  Blust (1978b)  M. citrifolia
POC  *nonum  French-Wright (1983)  M. citrifolia
PPC  *nonu  Ross (1985)  M. citrifolia
PPN  *nonu  Biggs (n.d.)  M. citrifolia
MTU  nonu  tree, M. citrifolia
BWA  none  plant, M. citrifolia
GIT  none  M. citrifolia
TAK  non  M. citrifolia
GED  nonom  M. citrifolia
FIJ(E)  noni  a shrub, M. citrifolia
KIR  non  M. citrifolia

43. Musa fehi (Banana sp.)

POC  *soanka  Clark (1986)  plantain
PEO  *soRoonga  Geraghty (1990)  banana sp.
PSS  *(es)olaanga  Geraghty (1990)  banana sp.
PNCV  *tsaanga  Clark (1986)  plantain
PNCV  *jo(R)anga  Geraghty (1990)  banana sp.
PCP  *soanga  Geraghty (1990)  banana sp.
PPN  *soaka  Biggs (n.d.)  banana sp.
ARO  toraya  banana (upwards pointing)
BRO  toraka  kind of banana
NGU  soaga  planatain
FIJ(E)  soanga  banana sp., M. fehi
SAM  soaʔa  indigenous banana (Musa sp.)
44. *Musa* spp. (Banana)

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<th>Author</th>
<th>Meaning</th>
</tr>
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<td><em>punti</em></td>
<td>Blust (1976a)</td>
<td>banana sp.</td>
</tr>
<tr>
<td>POC</td>
<td><em>punti</em></td>
<td>French-Wright (1983)</td>
<td>banana sp.</td>
</tr>
<tr>
<td>POC</td>
<td><em>pudi</em></td>
<td>Clark (1986)</td>
<td>banana sp.</td>
</tr>
<tr>
<td>POC</td>
<td><em>pudi</em></td>
<td>Ross (1988)</td>
<td>banana sp.</td>
</tr>
<tr>
<td>PMN</td>
<td><em>pudi</em></td>
<td>Chowning (1963)</td>
<td>banana sp.</td>
</tr>
<tr>
<td>PNCV</td>
<td><em>vudi</em></td>
<td>Clark (1986)</td>
<td>banana sp.</td>
</tr>
<tr>
<td>PNCV</td>
<td><em>vizi</em></td>
<td>Clark (1986)</td>
<td>banana sp.</td>
</tr>
<tr>
<td>PPN</td>
<td><em>futi</em></td>
<td>Biggs (n.d.)</td>
<td>banana</td>
</tr>
<tr>
<td>TUB</td>
<td>udi</td>
<td></td>
<td>banana</td>
</tr>
<tr>
<td>MAN</td>
<td>vudi</td>
<td></td>
<td>banana</td>
</tr>
<tr>
<td>TOL</td>
<td>vudu</td>
<td></td>
<td>banana (generic)</td>
</tr>
<tr>
<td>GEL</td>
<td>vundi</td>
<td></td>
<td>banana, plantain</td>
</tr>
<tr>
<td>ARO</td>
<td>hugi</td>
<td></td>
<td>banana</td>
</tr>
<tr>
<td>BRO</td>
<td>huki</td>
<td></td>
<td>banana</td>
</tr>
<tr>
<td>RAG</td>
<td>hi</td>
<td></td>
<td>banana</td>
</tr>
<tr>
<td>LNW</td>
<td>vih</td>
<td></td>
<td>banana</td>
</tr>
<tr>
<td>PAA</td>
<td>ahis</td>
<td></td>
<td>banana</td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>vudi</td>
<td></td>
<td>bananas in general</td>
</tr>
<tr>
<td>TON</td>
<td>fusi</td>
<td></td>
<td>plantain or banana</td>
</tr>
</tbody>
</table>

45. *Ochrosia oppositifolia* (tree sp., 15-25m)

<table>
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<th>Author</th>
<th>Meaning</th>
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</thead>
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<td>PEO</td>
<td><em>vaRo</em></td>
<td>Geraghty (1990)</td>
<td><em>Ochrosia</em> sp.</td>
</tr>
<tr>
<td>PNCV</td>
<td>*va (rR)ova (rR)o</td>
<td>Geraghty (1990)</td>
<td><em>Ochrosia</em> sp.</td>
</tr>
<tr>
<td>PCC</td>
<td><em>vao</em></td>
<td>Geraghty (1990)</td>
<td><em>Ochrosia</em> sp.</td>
</tr>
<tr>
<td>PPN</td>
<td><em>fao</em></td>
<td>Biggs (n.d.)</td>
<td>tree (<em>Ochrosia</em> sp.)</td>
</tr>
<tr>
<td>GED</td>
<td>fazog</td>
<td></td>
<td>tree: stem used to make canoes</td>
</tr>
<tr>
<td>ROV</td>
<td>vao</td>
<td></td>
<td>plant, <em>Bleekeria ellipt.</em></td>
</tr>
<tr>
<td>FIJ(E)</td>
<td>vao</td>
<td></td>
<td><em>O. parviflora</em></td>
</tr>
<tr>
<td>TON</td>
<td>fao</td>
<td></td>
<td>name of a tree</td>
</tr>
<tr>
<td>EUV</td>
<td>fao</td>
<td></td>
<td>tree sp.</td>
</tr>
<tr>
<td>EFU</td>
<td>fao</td>
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</table>

(see also Item 32: *Heliconia* sp.)

46. *Pandanus* spp. (Screw Pine)

<table>
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<th>Author</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAN</td>
<td><em>pandDan</em></td>
<td>Blust (1982a)</td>
<td>pandanus sp.</td>
</tr>
<tr>
<td>POC</td>
<td><em>panda</em></td>
<td>French-Wright (1983)</td>
<td>pandanus sp.</td>
</tr>
<tr>
<td>POC</td>
<td><em>padran</em></td>
<td>Ross (1988)</td>
<td>pandanus sp.</td>
</tr>
<tr>
<td>PMN</td>
<td><em>panda</em></td>
<td>Chowning (1963)</td>
<td>pandanus sp.</td>
</tr>
<tr>
<td>PLN</td>
<td><em>fadan</em></td>
<td>Ross (1985)</td>
<td>pandanus sp.</td>
</tr>
<tr>
<td>PEO</td>
<td><em>vanra</em></td>
<td>Levy (1980)</td>
<td>pandanus sp.</td>
</tr>
<tr>
<td>PCC</td>
<td><em>vadra</em></td>
<td>Geraghty (1983)</td>
<td>pandanus sp.</td>
</tr>
<tr>
<td>PMC</td>
<td><em>fata</em></td>
<td>French-Wright (1983)</td>
<td>pandanus</td>
</tr>
<tr>
<td>PPN</td>
<td><em>fara</em></td>
<td>Biggs (n.d.)</td>
<td>pandanus</td>
</tr>
<tr>
<td>MLI</td>
<td>padan</td>
<td></td>
<td>pandanus</td>
</tr>
<tr>
<td>LAV</td>
<td>aran</td>
<td></td>
<td>pandanus</td>
</tr>
<tr>
<td>NAL</td>
<td>fadan</td>
<td></td>
<td>pandanus</td>
</tr>
</tbody>
</table>
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LAU  fada (da)  pandanus
MTA  vana  pandanus
ROT  hata  pandanus
FIJ(E)  vadra  P. odoratissimus
TON  faa  pandanus
PSS  *xile  Levy (1980)  pandanus sp.
PNCV  *ki  Clark (1986)  pandanus sp.
PPN  *kie  Biggs (n.d.)  pandanus sp. used for making fine mats
ROR  ere?ere  pandanus
MTU  geregere  P. odoratissimus
ARE  ?ire  pandanus
ARO  kire  P. odoratissimus
NGU  nakie  mat pandanus
TON  kie  pandanus; very fine mat
PSS  *vayu  Levy (1980)  pandanus sp.
PNCV  *vaku  Clark (1986)  pandanus sp.
TAL  vagu  pandanus
KWO  fa?u  pandanus
ARO  ha?u  pandanus
FGN  hayu  pandanus
MGA  vau  a pandanus
NGU  navaku  pandanus sp.
POC  *pau (m)  French-Wright (1983)  pandanus
GRE  *pasa  French-Wright (1983)  pandanus sp.
GET  *gira  Geraghty (1990)  P. acidula
PEO  *gia  Geraghty (1990)  tree sp.
PRC  *gila  Geraghty (1990)  strong shore tree
PNCV  *gila  Geraghty (1990)  hardwooded shrub

47. Pemphis acidula (hardwood shore tree)

POC  *pau (m)  French-Wright (1983)  a species of pandanus
GRE  *pasa  French-Wright (1983)  P. manghas
SML  hata  k.o. tree with hard wood
ARO  hata  large tree sp.
FIJ(E)  vasa  C. odollam
EUV  faha  variety of pandanus
SAM  fasta  variety of pandanus
48. *Piper methysticum* (Kava)

<table>
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<tr>
<th>Code</th>
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<th>Author</th>
<th>Additional Information</th>
</tr>
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<tbody>
<tr>
<td>PNCV</td>
<td>maloku</td>
<td>Clark (1986)</td>
<td>kava</td>
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<tr>
<td>RAG</td>
<td>maloyu</td>
<td></td>
<td>kava, <em>P. methysticum</em></td>
</tr>
<tr>
<td>PAA</td>
<td>malou</td>
<td></td>
<td>kava</td>
</tr>
<tr>
<td>NMK</td>
<td>malok</td>
<td></td>
<td>kava</td>
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<tr>
<td>NGU</td>
<td>namaloku</td>
<td></td>
<td>kava</td>
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</table>

(see also Crowley, this volume)

49. *Pometia pinnata* (Native Lychee; Oceanic Lychee)

<table>
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<th>Name</th>
<th>Author</th>
<th>Additional Information</th>
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<tbody>
<tr>
<td>PEMP</td>
<td>*tawan</td>
<td>Blust (1978b)</td>
<td>tree sp.: <em>Pometia</em></td>
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<tr>
<td>POC</td>
<td>*(n)tawa</td>
<td>Pawley &amp; Green (1973)</td>
<td><em>Pometia</em></td>
</tr>
<tr>
<td>POC</td>
<td>*tawan</td>
<td>French-Wright (1983)</td>
<td><em>Pometia</em> spp</td>
</tr>
<tr>
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<td>*dau</td>
<td>Clark (1986)</td>
<td><em>Pometia</em> sp.</td>
</tr>
<tr>
<td>PPN</td>
<td>*tawa</td>
<td>Biggs (n.d.)</td>
<td><em>P. pinnata</em></td>
</tr>
<tr>
<td>BWA</td>
<td>tawana</td>
<td></td>
<td>species of tree</td>
</tr>
<tr>
<td>GED</td>
<td>tau</td>
<td></td>
<td>a tree</td>
</tr>
<tr>
<td>MUS</td>
<td>tao (n)</td>
<td></td>
<td>tree with sweet fruit</td>
</tr>
<tr>
<td>NAU</td>
<td>taw</td>
<td></td>
<td>tree with yellow flowers</td>
</tr>
<tr>
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<td>awa</td>
<td></td>
<td>tree, sp. of lichi</td>
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<td>MTA</td>
<td>tawan</td>
<td></td>
<td>a kind of lichi</td>
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<td>NGU</td>
<td>nadau</td>
<td></td>
<td><em>Pometia</em></td>
</tr>
<tr>
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<td>fava</td>
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<td>kind of fruit tree</td>
</tr>
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<td>FIJ(E)</td>
<td>dawa</td>
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<td><em>P. pinnata</em></td>
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50. *Pritchardia pacifica* (Fiji Fan Palm)

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<th>Author</th>
<th>Additional Information</th>
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</thead>
<tbody>
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<td>Geraghty (1990)</td>
<td>fan (umbrella) palm</td>
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<tr>
<td>PSS</td>
<td>*vilu</td>
<td>Levy (1980)</td>
<td>fan palm</td>
</tr>
<tr>
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<td>*vilok</td>
<td>Geraghty (1990)</td>
<td>fan palm</td>
</tr>
<tr>
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<td>*piu</td>
<td>Biggs (n.d.)</td>
<td><em>P. pacifica</em></td>
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<td>tree species</td>
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<td>umbrella palm</td>
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<td></td>
<td>kind of palm tree</td>
</tr>
<tr>
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<td>viu</td>
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<td>fan palm, <em>P. pacifica</em></td>
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</table>

51. *Pterocarpus indicus* (Rose Wood: used as a live fence, for house timber and for furniture; bark used in treatment of dysentery)

<table>
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<th>Additional Information</th>
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<td>tree sp.</td>
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<td>nara</td>
<td></td>
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<td>nal</td>
<td></td>
<td><em>Pterocarpus</em></td>
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<tr>
<td>LOU</td>
<td>na</td>
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<td>tree with red wood</td>
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52. *Pueraria* sp. (Vine: yam-like plant; edible tubers some spp.)

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<td>aka</td>
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Plant sp.  
Vine, *Pueraria*, net fibre  
Small fish net  
*Pueraria* sp.  
Vine for nets, *P. trilobata*  
Creeper sp. (*Pueraria*)  
Small net for *palolo* worm  
Square fishing net  
Yam with blue flowers  
Creeper, *P. tuberosus*  
Leguminous creeper

53. *Rhizophora* spp. (Mangrove)

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Mangrove  
Mangrove  
Mangrove  
Mangrove  
Mangrove, *Bruguiera gymn.*  
Mangrove  
Mangrove

54. *Saccharum edule* (Pitpit; Fiji Asparagus)

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Sugarcane sp.  
Pitpit  
Edible plant like sugarcane  
*S. edule*  
Sugarcane, *S. edule*  
*S. edule*  
*Saccharum* sp.  
Wild pitpit

55. *Saccharum officinarum* (Sugarcane)

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<td>Clark (1986)</td>
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Sugarcane  
Sugarcane  
Sugarcane  
Sugarcane  
Sugarcane  
Sugarcane
### Saccharum sp. (Sugar Cane)

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<td>Sugarcane</td>
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<td>TGO</td>
<td>tovu</td>
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<td>dovu</td>
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56. *Saccharum* sp.

<table>
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<td>*viso</td>
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<td>Edible cane sp.</td>
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<td>*fiso</td>
<td>Biggs (n.d.)</td>
<td>K.o. wild sugarcane</td>
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<td>MTU</td>
<td>hido</td>
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<td>A wild cane</td>
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<tr>
<td>KAI</td>
<td>vis</td>
<td></td>
<td>S. spontaneum</td>
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<td>GEL</td>
<td>viho</td>
<td></td>
<td>Sp. of shore lily, <em>Crinum</em></td>
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<td>viso</td>
<td></td>
<td>Reed with edible flower heads</td>
</tr>
<tr>
<td>LEW</td>
<td>vio</td>
<td></td>
<td>Cane flower (edible)</td>
</tr>
<tr>
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<td>viño</td>
<td></td>
<td>Wild sugarcane</td>
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<tr>
<td>SAM</td>
<td>fiso</td>
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<td>S. floridulum</td>
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### Spondias dulcis (Polynesian Plum; Golden Apple)

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<th>Description</th>
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<td>Clark (1986)</td>
<td>Polynesian plum</td>
</tr>
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<td>*huri</td>
<td>Chowning (1963)</td>
<td>Polynesian plum</td>
</tr>
<tr>
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<td>*uRi</td>
<td>Geraghty (1990)</td>
<td>K.o. tree, S. dulcis</td>
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<tr>
<td>PSS</td>
<td>*uli</td>
<td>Levy (1980)</td>
<td>S. dulcis</td>
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<td>PNCV</td>
<td>*usi</td>
<td>Clark (1986)</td>
<td>Tree sp., S. dulcis</td>
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<td>Polynesian plum</td>
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<td>Geraghty (1990)</td>
<td>Polynesian plum</td>
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<td>Mango (S. dulcis)</td>
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<td>S. dulcis</td>
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<td>LAU</td>
<td>uli</td>
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<td>K.o. tree, S. dulcis</td>
</tr>
<tr>
<td>KWO</td>
<td>uli</td>
<td></td>
<td>Polynesian plum</td>
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<tr>
<td>MTA</td>
<td>ur</td>
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<td>S. dulcis</td>
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<tr>
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<td>S. dulcis</td>
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<tr>
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57. *Spondias dulcis* (Polynesian Plum; Golden Apple)

### Terminalia catappa (Indian Almond; Java Almond; Okari)

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59. *Vitex cofassus* (hardwood tree; used in house construction)

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60. *Zingiber* spp. (Ginger)

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<td></td>
<td>ginger</td>
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3. DISCUSSION

3.1 CULTURAL IMPLICATIONS

Nearly all of the sixty best-known trees and plants set out above have a practical application in the daily lives of Melanesian Austronesian-speakers, and in all likelihood in the lives of Austronesians outside this area. It is because they are utilitarian that they have become important, with widespread cognate sets. The sample of flora listed may be divided as follows:

1. Edible leaves, vegetables, greens:
   - Erythrina indica, Ficus spp., Hibiscus manihot, Intsia bijuga

2. Nuts:
   - Areca catechu, Barringtonia spp., Canarium indicum, Cinnamomum sp.,
     Dracontomelum sp., Inocarpus edulis, Terminalia catappa

3. Fruit:
   - Citrus spp., Mangifera indica, Pometia pinnata, Spondias dulcis, Syzygium malaccensis

4. Staples:

5. Seeds/Decoration:
   - Adenanthera pavonina, Cordyline spp., Curcuma spp., Morinda citrifolia

6. Housing/Building:
   - Adenanthera pavonina, Bischofia javanica, Calophyllum inophyllum, Casuarina equisetifolia, Erythrina indica, Hernandia peltata, Intsia bijuga, Metroxylon spp., Vitex cofassus

7. Fishing:
   - Antiaris toxicaria, Barringtonia spp., Derris spp.

In terms of diet, the picture implied by the reconstructions for Melanesian Austronesian society in times past is little different in rural areas of Melanesia today. European-introduced greens have largely replaced edible ferns in some areas, but nuts are still much in demand as a source of protein in an area where fresh meat and fish are not readily available on a daily basis. The staple foods remain much the same today as in the past, with the emphasis on root crops. Famine foods such as fermented breadfruit stored in pits are largely only remembered

(see also Item 21: Curcuma sp.)
by the elderly, since the introduction of rice in colonial times has largely eliminated the need for such provisions.

3.2 SEMANTIC CHANGE

Inevitably there are changes in the meaning of many of the original etyma as they are reflected in the daughter languages. In many cases this development is hardly surprising, since for many reconstructed forms it is extremely difficult, if not impossible, to assign a precise single meaning to a given reconstructed form, especially where abstractions are concerned. With reconstructions denoting concrete objects the problem of polysemy is somewhat reduced, but by no means eliminated. Consider, for example, the following example, taken from Blust (1983-84a:44):

*bagah ‘palm sp.’: HAN baga, ‘tall palm (probably Oriana decipiens Becc.)’,
AKL baga (h), ‘palm tree: Oriana palindan’, MAR baga, ‘palm tree’, TAE baga,
a ‘palm: Metroxylon elatum Mart.’, MAK baga ‘kind of pandanus’

In this example four different species are involved, although all except the last is a palm. Even within the context of major flora, however, there can be some surprising semantic shifts. Witness, for example, the Central Papuan area, where one of the most commonly attested forms for breadfruit, a reflex of POC *baReko, denotes sago palm, this in an area where reflexes of POC *rabia abound. This raises the question of the sources of multiple reconstructions for a single lexical item.

A common semantic shift away from the original posited meaning of a reconstructed form is an extension from the item itself to the function of that item and even the product made from that item. A good case in point concerns the Pueraria (Item 52). The Pueraria is a yam-like vine, whose reconstructed form for POC (*waka) has just that meaning. The PEO reconstruction, a little lower, denotes a vine, a fibre from which nets are made. By the time one reaches the PSS reconstruction, (*laka), the meaning has moved as far as the object made with the vine, namely a small fish net. Examples such as those discussed above are not at all uncommon in the Austronesian family, as a perusal of the witness reflexes of early reconstructions such as Dempwolf f’s 2,215 Proto Austronesian lexical forms readily demonstrates.

3.3 MULTIPLE RECONSTRUCTIONS

One of the problems not easily resolved is that of multiple reconstructions for single, seemingly uncomplicated lexical items such as major flora terms. In the sample presented in this paper, we have the following striking cases, for example:

| breadfruit | POC *kuluR, POC *baReko, PEO *maRi |
| Calophyllum sp. | POC *pitaquR, POC *bakuRa, POC *tamanu |
| Cordyline sp. | POC *jiRi, PEO *jiRi, PEO *ngaRi (a) |

While multiple reconstructions can clearly be assigned to different species in some cases, for example with yam and taro species, the same is not true for items where multiple reconstructions clearly have a single species referent. By the same token, it is to be hoped that eventually systematic reconstructions can be produced for flora items whose geographical range covers the whole Austronesian area, but for which reconstructions are at present lacking for either the Oceanic or non-Oceanic sub-group areas.
3.4 DISTRIBUTION OF REFLEXES

Oceanic reflexes of reconstructed flora terms are at times problematic in their geographical distribution. In many cases, especially where there are single reconstructions, as with POC *tupa, ‘fish poison plant, Derris sp.’, or POC *dada, ‘coral tree, Erythrina indica’, the reflexes are almost universal throughout Melanesia. With others, especially items which have less economic importance, the distribution of reflexes often patterns quite irregularly.

Of more interest perhaps is the distributional pattern where competing reconstructions are involved. For present purposes a single pair will suffice to make the point. In Vanuatu, for example, there are reflexes of two POC reconstructions *qupi and *CamV ‘yam’. Reflexes of *CamV cover a geographically continuous area in the north and centre of the country, while reflexes of *qupi are restricted to the south-central area, setting up a kind of complementary distribution (Tryon 1976b). It has also been observed that the area in which one finds reflexes of *qupi, also has a quinary numeral system with approximately the same geographical range. This suggests first of all that borrowing is a ready source of competing or multiple forms in a single region. It suggests something more, perhaps, namely that not just a single borrowing takes place at a time, but that cultural incursions, such as the Polynesian incursions in southern Vanuatu, may bring with them lexical packages, so to speak, where multiple lexical replacement may take place.
THE PLACE OF PLANT NAMES IN RECONSTRUCTING PROTO AUSTRONESIAN

JOHN U. WOLFF

1. INTRODUCTION

There are something like 175 plant names which have been proposed at one time or another to have originated in the Proto Austronesian language (PAN). Scholars have been at a loss as to how to handle these forms, for like the rest of the PAN vocabulary, or perhaps even more so, plant terminology is full of mysterious contradictions and what Dempwolf called *Lautunstimmigkeiten und Nebenformen* – that is, phonological irregularities and alternative reconstructions. To further our understanding of PAN what is urgently needed at this point is to bring order into this chaos. The problem has been not the failure to recognise similar forms as descendants of PAN, but rather the failure to distinguish those forms that can reasonably be reconstructed from those forms which by no stretch of the imagination could be attributable to PAN. What I would like to do in this paper is to enunciate some principles or better approaches which seem to me grounded in common sense and our own experience in the everyday world, principles which take as their point of departure the view that the history of words can only be understood in terms of the cultural milieu in which they are embedded or their functioning in the society which uses them. These principles can give us some clue as to how to approach this mass of confusing data. I believe that if we lay these ideas out on the table and then examine the forms individually, asking the questions which these principles lead us to ask, the confusion will clear up and a reasonably neat and clear picture will emerge. In this way we will have shorter lists: (1) of forms which definitely can be attributed to PAN, which are marked with a single asterisk in this paper; (2) of forms which might be attributed to PAN, though definitive proof is lacking (also marked with a single asterisk); (3) of forms which are attributable to a subgroup, but for which there is no evidence that they go back to PAN, which are marked with a double asterisk; and finally, (4) of forms which cannot be attributed to any protolanguage and which clearly spread through their range secondarily, which are placed in square brackets.

1.1 TRANSCRIPTIONS

I reconstruct a simpler phonology for PAN than is normally done (Wolff 1988, 1991, 1993). The following chart shows the symbols for the consonants which I reconstruct compared with those commonly used to represent PAN phonemes:

1.2 PRINCIPLES

The first consideration is that in the case of things in the real world, only those that attract
the attention of the speakers are likely to get names. In the case of plants, only those get
names that are cultivated or if they are wild, there must be something special about them
(they are widely used for food or for producing things or they have an important ritual role,
or the like). Thus, when people come into contact with new plants either through
introduction or by moving to a new place, those new attention-getting plants are given names
– by borrowing the name from others who know it already, or by calling the plant by a name
familiar from other contexts, or by providing a descriptive name. Thus, when my family
came to Florida from Germany, we found all sorts of new plants in our yard which had to be
named. Most of these plant names we learned from the community which had also learned
the name secondarily. Learning of new names gives rise to folk etymology or what I call the
‘ponsietta syndrome’. By this process the learner guesses at the phonology of the new name
and often changes it to make it similar to something familiar. This gives rise to all sorts of
variations in the name. For example, I do not recall ever having heard the correct version of
the name, which I have since learned should be poinsettia. They called it ponsetta, ponsettia,
and my favourite, ponsietta (ponsietta was so called on analogy with another tree name
people only learned in Florida, the poinciana). In short, our first principle is that folk
etymology is normal in names which a community has newly learned. The converse of this is
that if a plant name is widely spread and shows little sound irregularity, the chances are good
that it is an inherited name, not something which has been borrowed.

1 The PAN pairs of phonemes *C and *t and also *N and *n are in complementary distribution. Further,
the phonemes symbolised *T, *C, *d, *r, *z and *g are not reconstructable for PAN. Where I have listed
forms with these letters, they refer to forms which I do not believe can be reconstructed for PAN. These
phonemes are discussed in the articles listed under my name in the bibliography.
Secondly, in my experience in Florida, we took plants names that were familiar and applied them to plants we had to refer to. I remember that our neighbourhood had a lot of *Leucaena glauca*, trees that are called *ipil-ipil* in the Philippines. We children called them ‘puff-ball trees’ because their inflorescence looked like little powder puffs, but I remember that one of my more knowledgeable playmates informed us that the real name of this tree was ‘locust’ on the authority of his mother. Although upon close examination the *ipil-ipil* does not resemble a locust, there is enough by way of pinnate leaves and long beans to remind one of the locust trees of the north-eastern United States, the place of origin of my friend’s mother. My grandmother who prided herself on the purity and accuracy of her German, found a German word for everything she came into contact with. The *Melaleuca* tree in our neighbour’s yard she called *eine Bircke* ‘birch’. To apply this example to our study of the reconstruction of plant names: by this token we frequently find the same name given to trees which are similar. Of course, the decision about which is the original referent and which is the new referent depends on knowledge of the history and distribution of the plant in question.

The new plant does not have to resemble the old plant in the least for an old name to be spread to a new plant. We had a bush in our yard that produced sweet-smelling flowers which my mother called a jasmine, a flower which she had read about but which she had never experienced. It was only many years later that I learned that the jasmine was an entirely different plant from the one in our yard. This explains how we can find the same name for plants which have absolutely nothing to do with each other. For example, in our data we have reflexes in various places in Indonesia and the Philippines for a form which we might reconstruct as *qanasaw* (although it is not really possible to ascribe this form to PAN). However, in the Philippines and adjoining languages of northern Sulawesi, this plant refers to the fan-tail palm, *Livistona* sp., whereas elsewhere, the name refers to the sugar palm, *Arenga pinnata* (Malay *enau*, etc.).

As my example of the *Leucaena glauca* which we children called ‘puff-ball trees’ illustrates, a descriptive name which one can etymologise is one given to a plant that has been newly learned about. Thus, the *(kamuni)j*, *Murraya paniculata*,2 is named after the yellow quality of the wood it yields, from Malay *kuning* ‘yellow’.3 Words which resemble this name are widespread throughout Indonesia and the Philippines, but it is obviously a Malay term, and originates as a descriptive term. Similarly *(kama)j*, the name for sweet basil, *Ocimum sanctum*, surely contains the Javanese root *wangi* ‘smelling good’ and is descriptive. We do not have as many citations for this name as for *(kamuni)j*, and the same argument can be made: these names are borrowings from a descriptive Javanese name.

If a plant is introduced from the Americas there is prima facie evidence for ruling its name out as a PAN inheritance. Of course, by the principle that old names can be applied to new plants, it is not impossible that an inherited PAN word should be applied to a New World plant, but this only happens when the name also applies to an Old World plant. Thus the various versions of the form *bayem*, the *Amaranthus*, which are found in Indonesia and the Philippines, cannot possibly be inherited forms because the name does not refer to anything but this plant. My argumentation is confirmed by the fact that the names for this plant show

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2 The Latin names follow Burkill (1966).
3 As K.A. Adelaar pointed out during the conference, the form *kuning* itself is not inherited in Malay. The word for ‘yellow’ comes from the name for the plant *Curcuma longa*, which is inherited (not from PAN in all likelihood) as *kuhit* in Malay. *Kuning* itself probably comes from one of the Batak languages which reflects final *g* as -*g* (Karo Batak).
all sorts of phonemic irregularities. On the other hand the name **baŋkuwag** can be ascribed to the protolanguage of a low-order subgroup of western Indonesian and Philippine languages, and it originally referred to a species of pandanus. In Malay, Javanese, Sundanese, Makassarese and some of the Minahassan languages the reflex of this form refers to the *Pachyrhizus erosus*, a kind of tuber similar to a mild white radish, known in the Philippines as singkamas. *Pachyrhizus erosus* is a native of the Americas, and a name for it in Mexico is sengkuwang. Obviously, this plant and its name was introduced somewhere in Nusantara and quickly was folk-etymologised to baŋkuwag, with which name it was spread. In this case the name baŋkuwag can nevertheless be ascribed to the protolanguage of a Philippine-Indonesian subgroup because we have baŋkuwag in languages of this subgroup referring to a species of pandanus (including some of those languages that apply the name also to the *Pachyrhizus erosus*).

2. FORMS WHICH CAN BE ASCRIBED TO PAN WITH CERTAINTY

Although more than half of the plant names which are listed in our sources are of secondary origin (resemble each other by virtue of spread), we are by no means at a loss as to how to distinguish these secondary forms from the primary ones which resemble each other by virtue of inheritance from PAN. We obviously cannot make decisions blindly, but when three conditions are met, we can say that we are dealing with a form which is ascribable to PAN. Firstly, the attestation covers a wide area. This is not always easy to establish. Our information on the languages of Formosa is spotty – too many of the languages have died out, and for the living languages detailed accounts of plant names are not available. Many of the languages of eastern Indonesia offer similar problems. Further, by the nature of the plant distribution in eastern Oceania, eastern Oceanic plant names with a PAN etymology are limited. Also we do not have a great deal of data on plant names in western Oceania. In short, we have names for a large number of plants only in the languages of Indonesia and the Philippines, where the languages clearly underwent strong mutual influence. In other words, this first condition is not easy to meet. A second condition is that the correspondences are regular. Thirdly, the reference is to a plant of a sort of which it makes sense to say that it was a plant that the community named throughout its history.

Obviously these criteria are too strict to apply across the board literally with no exceptions. Almost all of these forms have reflexes somewhere which show phonemic irregularities. Further, for many of the plant names which can be attributed to PAN, there are substantial groups of languages which do not show reflexes. I will argue shortly that the scattered nature of the attestation and the regularity of correspondence is a very strong indication of inheritance from PAN. In any case, the following forms are as certain in their reconstruction as anything in the PAN lexicon. Although there may be irregularities in a few of the attested forms, the general pattern is one of little irregularity and the spread is over the widest reaches of the Austronesian group. The most important of the cultivated plants are in this group of plants. Firstly, there are the food crops. There are three words for rice: one referring to the grain *beyás, a second referring to the plant *págey, and a third being the general word for rice, *seméy or *semey. We consider *seméy to be PAN, but it is not as well attested as the other two words and we will take it up shortly. Other food plants are: the

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4 It is questionable whether rice predates PAN. The words for rice were either borrowed in PAN times or they were such early borrowings that they show no irregular phonemic correspondences. The form *beyas has numerous cogenitors outside the Austronesian group (including the English word 'rice' itself).
grain, millet, *betêg, Panicum viride, and the root crops: the taro, Colocasia esculenta, *tales; the yam, Dioscorea alata, *qûbi; the Alocasia spp., *bfyaq. Also in this group is the grain, Job’s-tears, Coix lachryma-jobi, *qajelay, which is now not an important food crop in Southeast Asia except in a couple of widely scattered places but is thought in former times to have been an important grain crop. Job’s-tears, Coix lachryma-jobi, lost its importance as a foodstuff over the last millennium, and as a minor plant its name got lost, changed, borrowed and so forth in many languages. However, we can reconstruct PAN *qajelay, for its name, reference and phonology remained stable in enough languages from scattered locations that we can be certain that the name is inherited from PAN in them.

Also some of the basic fruit trees have a PAN etymology: the banana, *puti; the coconut, Cocos nucifera, *niyuy; the mango, *pásaq. Possibly sugarcane, *tebus, was cultivated. In any case its name is certainly ascribable to PAN. We also have reflexes in many languages of the name for the betel nut, Areca catechu, *buwaq. We can reconstruct the form *buwaq in PAN, but its reference to the betel plant is limited to a certain area. In widespread areas from Formosa to Polynesia reflexes of *buwaq are the general term for fruit, and this is the meaning which we must reconstruct for PAN. The reference to betel nut is confined to Nusantara and the Philippines, and the history must be that in one language the general reference ‘fruit’ was specifically applied to the betel nut, the fruit par excellence, and then this development spread. Interestingly enough, in Cebuano the word for fruit, búga, which is from a word which originally had meant flower, has also come to refer to the betel nut.

There are also names for plants that were not grown but which yield important products. We can say these were inheritances from PAN: *tûba, Derris elliptica, used as a fish poison (incidentally, in the Philippines the name is transferred to a tree which furnishes fish poison); bamboos, *gâwuy and *bâluy; rattan, Calamus and Daemonorops spp., *qûvey or *qûway. Another group consists of plants which were important mainly because they were prominent. Although some of these also yield products which the society used, the prime reason they seem to have survived in such a broad range of languages is that they referred to things that were a prominent part of the landscape everywhere. Almost all of these are trees of the seashore: the Australian pine, Casuarina equisetifolia, *qayûsuq or possibly *gayûsuq; Hibiscus tiliaceus, *bâyû; the Calophyllum inophyllum, *bitâqûy or *bitàqûy; the Barringtonia asiatica, *butûn; the Pandanus, *paqudañ; the catapang tree, Terminalia spp., *talûy; and a seashore tree, the Dolichandrone spathacea, *tewí. I would also put in this group the mangrove, Ceriops spp., *teqûy, a name which is found from Malaysia and the Philippines to Oceania. However, the plant produces a bark which is of commercial importance, and in southern Sulawesi the word is clearly a borrowing, not inherited.

Three other tree names are clearly inherited from PAN. Although they are not seashore trees, they are found in forests close to the seashore and have attention-getting characteristics. The first is the Erythrina sp., *dapdap, with its showy inflorescence. The second is the stinging nettle tree, Laportea sp., *jalep. The third of these is the banyan, Ficus benjamina, *nunûk. This tree was and still is considered a sacred tree, the habitation of supernatural beings. Although the name for this tree has been replaced by others in most of the Philippines and in western Indonesia, the name survives in scattered languages in the

5 James Fox pointed out at the conference that the use of this plant in rituals in many places in Southeast Asia attests to its antiquity, as opposed to sorghum, which has been introduced in comparatively recent times and is now widely grown, but is not part of the ritual.  
6 *BuIuq was probably a generic term for bamboos and thus this word must be considered in a different light from plant names.
Philippines and in Indonesia, and we can almost be certain that the new names for the *Ficus benjamina* are replacements for the earlier *numúk*. For example, in Aklan the name survives and refers to a tree with supernatural connections. In Sundanese numúk survives but it means 'supernatural spirit'. Tagalog has the word *núnú* 'supernatural spirit', but the phonology (final *-u* instead of the expected *-k*) indicates that this word is a borrowing in Tagalog. A similar argument can be made for the name for saw grass, the *Imperata cylindrica*, *yiq*. This plant has few uses but is so much a part of the everyday experience that we would expect to find reflexes of a name inherited from PAN. We have reflexes of *yiq* from southern Formosa throughout Nusantara including the Lesser Sunda Islands, with much of Indonesia and the Philippines showing gaps. Because it is a monosyllabic root there are numerous phonological irregularities, but I believe that these can readily be explained as adaptations of the monosyllabic root to the canonical shape of the root.

The words for rice are clearly inherited from PAN, but only the word for husked rice, *beyás*, is nearly universal in languages spoken in areas which produce rice. The word for the rice plant *págay* has been replaced in many areas by *seméy* or *semáy* which seems to have been the general word for ‘rice as food’. In some languages a word meaning ‘cooked staple’ (e.g. PAN *inapey* or some other word consisting of the infix *-in-* and another root) replaced *seméy* ‘rice as food’, and then *seméy* came to mean ‘rice plant’. The situation can be explained as follows: PAN speakers grew rice. When the Austronesian languages were brought to areas where rice was not produced (or spread to non-rice-growing populations), these words were lost, but as the populations learned about rice, these words were borrowed back, but the general word for rice, *semáy*, was taken over for the plant instead of the original *págay*.

Even the names which are inherited in most languages show signs of being secondary in some of the languages by having phonological irregularities. For example, the *Barringtonia asiatica*, *butún* in the languages of the southern Philippines and northern Sulawesi, receives an /l/ in the first syllable – *bitun*. We say this is an innovation because of the distribution of the phenomenon. In Cebu this name then gets folk-etymologised as *bituqun* ‘star’, presumably because of its sharply angled fruit which resembles a star. Another example is *náya*, the *Pterocarpus indicus*, which is reconstructable for a fairly high-order subgroup if not for PAN. Yet many of the attestations show phonemic irregularities. Bikol, for example, shows *mi'ra* with an /rl/, clearly an introduced form. However, in the placename *Nága*, the regular reflex occurs.

To the above list of PAN reconstructions which are certain we can add others which show phonemic regularity in most of the attestations and in fact are assignable to PAN, even though in fact they are found in only a small number of languages. It is the scattered nature of the attestation and the regularity of the correspondences which argue for the antiquity of the form and the reference. The argument is that if they were spread by borrowing they would be attested in adjacent languages. One example is the word for rice, *semáy*, discussed above, but which in fact is attested in only scattered languages in southern Formosa. the Philippines and in Batak. Another example is the word for *Donax canniiformis*, an important plant for providing cane for wickerwork and the like. This is reconstructed as *niníq*, and we assign it to PAN even though it is found only in the Batanic languages of the northern Philippines and then again in languages of eastern Indonesia and Oceania. In much of the area between we find reflexes of *banban*, again not all in contiguous areas – the name *banban* itself is broken by other names (see section 3). Another example is the name for the banana. The inherited name for the banana is found only in isolated places in western
Indonesia and not at all in the Philippines, but it is surely inherited, for we do find it in isolated places in the west (including Old Javanese). In eastern Indonesia and most points further east *puti is almost universal. The best example of this principle is *qa jelay, 'Job’s-tears', where many different facts independently show antiquity: scattered attestation, use of the plant for ritual, phonemic regularity in some of the scattered attestations.

The following four names are widely scattered, show no irregularities in their phonology and refer to plants which yield important products. We assign them to PAN: *anulig or *ganulig, *lataq and *lujut. The first, *anulig, is the Pisonia alba, for which we have citations in Hanonoo (the Philippines), Manggarai (Flores) and in Nggela (western South Pacific) only. The leaves of this plant are (or were) widely eaten; it is a widespread plant, sometimes cultivated, and the correspondences are regular in the three attestations. Verheijen (1984) cites names in other languages, the phonology of which is not always regular, but the irregularities can probably be explained. This looks like a plant that was important in former times, but which, like the Job’s-tears, is now not often cultivated. *Lataq is the name of an edible seaweed cited for Cebuano, Malay, and in eastern Indonesia in Roti and Yamdena. Again the correspondence and distribution argues for a retention from PAN. The plant is an important element of the diet in Cebu, but I have not seen it elsewhere in Southeast Asia.

The name *lujut refers not to a single plant but rather to a class of growths, parasitic plants. The name is attested in southern Formosa, in Malay, Sundanese, Central Sulawesi and in Chamorro. Again the regularity of correspondence and similarity of reference together with the widely scattered distribution argue for inheritance, not secondary spread. This is not really a plant name but rather a generic term which may behave differently from names in its historical development.

Another name which is widespread is *qaunaga, the name of the Cordia dichotoma. There are two difficulties with assigning this name to PAN. Firstly, there are phonological irregularities in some of the languages. Secondly, there is no obvious reason why this tree should be prominent. However, the name is distributed from northern Formosa through Malay, Kalimantan, the Philippines and Sulawesi to the Lesser Sunda Islands, as far east as Timor.

There are quite a few plant names which are not as widely distributed as those just mentioned but which are distributed over a wide enough range that it certainly would make sense to reconstruct them for PAN. Again, many of the plant names show gaps in distribution, which argues that they are retentions. The following plant names are found throughout Nusantara, the Philippines, Sulawesi and the Lesser Sunda Islands, as far east as the Molucca Islands: *lajaeya, ginger, Zingiber officinale; *nipaq, Nipa fruticans; *ditaq, Alstonia scholaris. These certainly have the characteristics of plants, the names of which are likely to be inherited. They have a wide range of uses and grow in the lowlands near the sea. In fact *nipaq is a palm of the seacoast swamps. The name for the ti plant, Cordyline fruticosa, *jiyi, has reflexes found throughout Oceania as well as Sulawesi and possibly the Philippines and Madagascar. It is an important plant in the system of beliefs of many Austronesian language-speaking groups and is widely used for various purposes.

Finally, there is *katapag, a name ascribable to PAN, although its reference is unknown. In Sumatra, Java and southern Sulawesi the name refers to the Terminalia catappa. This must be an innovation and replaces the well-attested PAN *talijay. There are various plant names
listed for reflexes of *katapaj in Polynesia and the Philippines, and in Polynesia this name also refers to the frigatebird.7

2.1 NAMES ASSIGNABLE TO PAN WITH LESS CERTAINTY

Other plant names occur for the most part in contiguous areas. They are wide ranging but not as far flung as the names discussed above. They have the semantic character of inherited names (i.e. they refer to prominent plants). We can say they are strong candidates for assignment to PAN, even though there is a window of doubt. It is not impossible that they spread secondarily. The first is *amiti, Solanum nigrum. This name is found from northern Formosa to Sulu. The name appears also in Javanese and Malay, but it is clearly secondary there.8 Although now an unimportant plant, it was formerly, like the Job’s-tears, an important item of food. This hypothesis is supported by the Ivatan and Rukai dialectal name for the Solanum nigrum, *hateq, which etymologically means ‘vegetable’. In Ivatan or some language in the area the Solanum nigrum was the vegetable par excellence.

Two other possible candidates for PAN inheritances are *daqú and *kawayán. The name *daqú is spread from southern Formosa through the Philippines to Java and also reappears in the Lesser Sunda Islands, southern Sulawesi, the Molucca Islands, and as far east as New Britain. The name is also found in Malay and Batak, but there it is clearly a borrowing. It refers to the Dracontomelum spp. but in Formosa refers to the soapberry tree which produces the klerek, the Sapindus mukorossi.9 The Dracontomelum produces good fruit, and this supports the notion that the plant was important. These reflexes are regular in the sound correspondences, and we can reconstruct *daqú, but the fact that it is distributed in adjacent languages opens the doubt that this is secondary. Incidentally, the same name with the same reference is found in non-Austronesian languages of eastern Indonesia and Papua New Guinea. The form *kawayán is attested in Formosa and the Philippines and one language of Buru. This must have PAN origins because the appearance in Buru is unexplainable otherwise. Incidentally Blust (1980a) believes that this form contains the root *qúway which we reconstruct for PAN with great confidence. A root with a similar distribution to *kawayán and *daqú is *pulút which refers specifically to the Urena lobata, a tree which provides bird lime. In many languages it refers to many other mucilaginous plants. This name is descriptive and is derived from the root *pulút ‘sticky, glued’ which we may reconstruct for PAN. The reference to the Urena lobata stretches from northern Formosa to Manggarai in Flores with gaps. This distribution of attestation may be a happenstance of our information (for the plant is not often listed), but there is a possibility that this plant name goes back at least to the protolanguage of the subgroup which contains both Formosan languages and Manggarai. I do not believe that this was PAN.

A name which is poorly attested but yet may possibly be assigned to PAN is *jabi, Ficus spp. This name is attested only in Toba Batak jabi-jabi, Malay jawi-jawi, Malagasy (Betseleo dialect) zavi and Fijian savirewa. These forms all refer to a banyan or Ficus variety. If the

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7 Bruce Biggs and Ross Clark during the proceedings of the conference pointed out the visual similarity between the frigatebird and the Terminalia.
8 Both Javanese ranti and Malay meranti have been reshaped by the same analogy and very likely the Javanese is a borrowing from Malay or vice versa.
9 The fact that the name has been applied to a new plant in Formosa argues for its antiquity. When the Austronesian languages spread to Formosa (I do not believe that Formosa was the homeland of PAN), the names for tropical plants not found in Formosa were applied to new plants.
Fijian form is not coincidentally similar to the others, this is indeed an inheritance from PAN.10

The word for *Citrus, *muntay, can be assigned to PAN with fairly good probability though by no means certainty, on similar grounds of scattered distribution. Reflexes are found in languages of Mindanao and Sulawesi, as well as the Lesser Sunda and Molucca Islands as far east as Ceram. This is a well-defined area of contiguous languages, but there are also attestations in outliers. What seems to be an inherited reflex occurs in the language of Mentawai, off western Sumatra. We also find versions of *muntay in Achinese and Balinese, but they are irregular in phonology and it is quite certain that these are loan forms in these languages. However, the reflexes of *muntay must have been more widespread in earlier versions of languages with which Achinese and Balinese came into contact. The following name is found from northern Formosa through the Philippines and Indonesia, but the reference in Formosa is to a *Miscanthus grass, whereas elsewhere the name refers to a fern: *qayi/am, a fern, *Gleichenia sp.11

These words are good candidates as PAN reflexes. To be sure, there is a window of doubt, and as illustrated by the example of sorghum (see *batag below), data may be available to prove that the form in question is not PAN.

2.2 NAMES NOT ASCRIBABLE TO A PROTOLANGUAGE

However, when we have a name which shows irregularities in contiguous areas and is a commercial product, we are certainly not dealing with an inherited form. Thus *bañay, the name of the sarsaparilla plant, *Smilax spp., which has important medicinal uses, has a distribution similar to the name of the *Solanum nigrum, but surely it is not inherited because it is an important medicinal plant and the name shows widespread phonological irregularities.

Further, other plant names found in Formosa and further south which do not have as widespread a distribution as the languages above cannot be assigned to PAN or even to the protolanguage of a subgroup. An example of this is the name of the mulberry, *Morus acidosa, which is cited as *tañiu/tañiu. This plant is an import from China and the name is only attested in Formosa and Itbayatan from the Batanes Straits, north of the Philippines. It would be perfectly silly to assign the reconstruction to PAN.

Another example is *kamaya, which refers to the mabolo, *Diospyros discolor, a name which is found from Formosa to as far south as Hanonoo in Mindoro. In fact, versions of this same name are found even further in the Philippines: kamagyn (spread throughout the Philippines) and amága in Cebuano.12 Further, there is the name **jálep, which refers to a forest product, dammar, rather than a plant. The name **jálep is applied to various dammar-

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10 There are things about this form which arouse suspicion. Firstly, the form is reduplicated in Malay and Toba Batak. This is prima facie evidence that the name is descriptive and thus not original. Secondly, the Malagasy form does not show the normal reflex of PAN initial *j.

11 Burkill (1966:1089) says this is a borrowing from an Arabic word meaning ‘delineate’, but I doubt it. The spread from Formosa through Indonesia and into the east makes this word very likely to be inherited. Because the name in Formosa refers to a different plant (*Miscanthus grass) than it refers to elsewhere (*Gleichenia, a kind of fern), I am uncertain as to what plant the name originally referred to. The connection is that both *Gleichenia and *Miscanthus have sturdy stems.

12 Blust (1980a) connects Cebuano amága with a name *mara found in southern Celebes and in Malay. There is no semantic connection with the form in Malay (Burkill lists it as *marah). The tree names in Celebes may indeed be connected, but it is clearly a matter of spread and not inheritance.
producing plants from Formosa to the Philippines. Here, the distribution does not allow us to attribute the form to PAN, although the form could be assigned to a protolanguage which includes the Philippines and Formosa, if indeed there is such a protolanguage. However, even though there are few if any phonemic irregularities in the attestations of this form, it is still highly likely, in view of the commercial importance of the product, that this form was spread by borrowing.

Finally, we should talk about the form [batag] ‘sorghum’, which is a plant introduced from the Middle East or somewhere west of Indonesia. Even though the name is spread from Atayal south throughout the Philippines and Nusantara, it has been spread secondarily. There are several facts which point to this: (1) the word is found in contiguous languages which do not form a subgroup (in this case a very large range); (2) the form does not reflect corresponding phonemes in important languages; and (3) the name does not refer to a plant that is ritually important anywhere.\(^\text{13}\) The form *batag may well be Proto Austronesian. However, we do not know what its reference is.

3. NAMES INHERITED FROM THE PROTOLANGUAGE OF A SUBGROUP IN WESTERN INDONESIA AND THE PHILIPPINES

There is another group of plant names which are widespread in the Philippines and Indonesia but which are not found east of Sulawesi. For those that show regularities of sound correspondence, there is good reason to reconstruct them for the protolanguage which includes the languages of Nusantara east of Sulawesi and the Philippines. I do not wish to say that all of these languages are in one subgroup, but certainly most of them are in a subgroup which is a lower order than PAN. (Let’s call the group the Philippine-Western Indonesia group.) The following forms are in the Philippine-Western Indonesia group: **bāku, *Crinum asiaticum*, a lily; **bāyu, *Pterospermum* spp., a timber tree;\(^\text{14}\) **buyu or buyuney, *Antidesma bunius*, a fruit tree; **lāmun, *Enhalus acoroides*, a grass of salt swamps (this name is widely scattered); **pakū, an edible fern (Dempwolff thought there was a cognate of this word in Sa’a, but the semantics do not make sense). In this group we can also put **nāya and **nītuq. The first, **nāya, the *Pterocarpus indicus*, is a hardwood and has important reflexes throughout the Philippines and the Lesser Sunda Islands. As we pointed out above, the reflexes of **nāya are not phonemically regular in all languages (hence borrowed, as one would expect for a plant of commercial importance), but there is a large enough number of regular reflexes that **nāya is a good candidate for inheritance from a protolanguage of a subgroup. The second, **nītuq, *Lygodium* spp., a climbing fern, is attested for the Philippines and Lesser Sunda Islands. The reference in some languages is to other climbing plants. Other forms are the following: **pangi, the *buah keluak* of Malaysia and Indonesia, *Pangium edule*; and finally, **tāyum, *Indigofera* spp., the indigo plant.

The following names are phonemically regular and are attested for languages ranging from Sumatra-Java-Kalimantan to the Philippines, but excluding Sulawesi: **banban, *Donax canniformis* (see section 2); and **lamputay, an old name applied to various ginger plants in the current languages. Perhaps it is a generic term for gingers. Other forms in this group are

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\(^{13}\) On sorghum in rituals see footnote 5. The fact that the Malay name *betari* has an extra /i/ at the end of the root, makes this name unique in Malay. It looks like a loan word from an Indic or Middle Eastern language, but I have not been able to find a confirming reference.

\(^{14}\) In Mongondow this name refers to the introduced tree, the sugar palm.
**pütat**, *Barringtonia* spp., trees of sandy seashores, mud flats and banks of slow-moving rivers (usually not applied to the *Barringtonia asiatica*, PAN *butún*); and **qaya**, *Ficus* spp. Reflexes of this word are found in Formosa, Batak, Malay, Sangirese, and in Flores. It may be inherited from the protolanguage which is ancestral to these languages. The name also appears in Old Javanese, but with a phonemic irregularity, indication of a borrowing. Finally, there is **baŋkuwaŋ**, which probably referred to a pandanus species, but in the Philippines the name refers to a reed which yields strips for weaving. As discussed in section 1, in Javanese, Malay and adjacent languages the name has been transferred to *Pachyrrhizus erosus*.

3.1 PLANT NAMES SPREAD THROUGHOUT THE PHILIPPINES AND INDONESIA WHICH ARE NOT INHERITED

The Philippines and western Indonesia is an area of mutually influencing languages. Malay especially has been influential as a lingua franca throughout the area for more than a millennium. This means that we have to take into account the cultural background of the plant. For example, there is the *Abrus precatorius* which has the name *sága* throughout Nusantara and the Philippines. This name shows no phonological deviation throughout other than the correspondence Philippines /g/ - Malay /g/ which I do not believe reflects a PAN phoneme. However, in this case it is not the phonemics, but our knowledge of the use of this bead in commercial transactions that makes it totally impossible for us to believe that this word is inherited. Burkill mentions that the word is from Arabic (I have not found it listed), but in any case we do not have a PAN word for the *Abrus precatorius*. Another example is the word for garlic, *[bawag]*, which is spread through the Philippines and Java-Sumatra-southern Kalimantan. This surely is not inherited, as there are phonemic irregularities. Further, garlic is a recently introduced plant.

Morphological considerations can also play a role in deciding whether or not to assign a form to a protolanguage. For example, the form *[mali]*, the name of a shrub, *Leea* spp., is found throughout the Philippine-Western Indonesian language area with no phonemic irregularities. Yet we would not call it an inheritance, for in most languages the name is doubled or reduplicated: for example, Samar-Leyte *amamali*, Tagalog *mali-mali* and so forth. The reduplication indicates that the name is descriptive and therefore probably not inherited. Of course it is possible that the descriptive name developed in the protolanguage and has been inherited in the current languages.

There are many plants which, like the *Abrus precatorius*, *[aga]*, have names that are irregular in their correspondences and which have a role in the economic life of the community. This makes it absolutely certain that their names are not inherited. The following plant names refer to vegetables, fruits and medicines which spread throughout Nusantara and into the Philippines. Almost all of them show irregularities in some or all of the languages: *[temu]*, *Curcuma* spp., a root used for medicine or spice; *[teraj]*, the eggplant; *[kundur]*, *Benincasa carifera*, a kind of squash; *[santul]*, *Sandoricum indicum/nervosum*, a fruit; *[jarajaw/jarijaw]*, *Acorus calamus*, the sweet flag, a medicinal plant; *[pariya]*, *Momordica charantia*, the bitter melon, a vegetable; *[balimbil]*, *Averrhoa bilimbil/carambola*, a fruit. In the case of this name it is only in the languages which reflect PAN *b* with another phoneme that we have any irregularity of correspondence, but these languages and the attestations in other languages which show analogical changes make it clear that this name spread by borrowing. I would put *[baŋkuwaŋ]*, *Morinda citrifolia*, which was important as a source of
red dye, in this group. Also in this group is \textit{ja\'ukus}, the greater galangale, \textit{Languas galanga}, a spice which has connected (but phonologically irregular) names throughout Indonesia and the Philippines. The name for the jackfruit, \textit{Artocarpus heterophyllus}, \textit{na\'anka} should also be in this group. This name with phonological irregularities is spread through the Philippines and Indonesia as far east as Irian Jaya. The tree is of Indic origins. Finally, there is the vegetable \textit{ka\'akuj}, \textit{Ipomea reptans}. This is a widespread name that shows irregularities in a couple of languages of the Philippines. In this case, the shape of the root as well as the irregularities argue that this form spread by borrowing. We do not reconstruct any other root for PAN or for a subgroup which consists of a reduplicated monosyllable where the first syllable has /au/ and the second /au/.

There are other introduced plants, which do not have the clear economic importance of the preceding, but nevertheless we take these names to have been spread by borrowing because of their phonological discrepancies. The first of these is \textit{lepaj}, \textit{Caesalpinia sappan}, the Brazilwood tree. Burkill thinks the name has something to do with the Sanskrit name \textit{pattaga}. This name is found as far east as the Weda language in Halmahera. In this group is also the \textit{Sierculia foetida}, \textit{kalumpaj}. The reflexes of this name are fairly regular, but the distribution of the name leaves no doubt that it spread secondarily. It is not attested in Sumatra except in Toba Batak and in Malay. It is attested only for central and southern Sulawesi and the southern Philippines, not Kalimantan. Others in this group are: \textit{kesambij}, the \textit{Schleichera oleosa}, a name found in the Lesser Sunda Islands, Malay and Javanese with many irregularities; \textit{tudi}, the \textit{Sesbania grandiflora}, a tree grown to shade coffee plants, which must have spread secondarily as the attestations show great irregularities; and \textit{ganibaj}, the \textit{Onosperma tigillaria}, a palm of coastal forests with a name showing irregularities. The name for the \textit{Trema orientalis}, \textit{yedu}, is distributed from Puyuma in Formosa to the Lesser Sunda Islands, Java and northern Sulawesi. It shows irregularities everywhere, and despite its wide distribution is not reconstructable for the protolanguage. The name \textit{baluyu}, \textit{Entada phaseoloides}, the gogo vine, which was used as a shampoo, is distributed from the Philippines to Timor and is also attested for Sundanese. The great number of phonemic irregularities prove that this name has spread. The form \textit{b\'aju}, \textit{Gnetum gnemon}, is found with this reference only in the central and southern Philippines. (With the reference \textit{Hibiscus tiliaceous} it can be reconstructed for PAN – see section 2.) This name also spread to Old Javanese, Makassarese and Malay, but with accreted final consonants. Finally, there is the name \textit{lagundi}, \textit{Vitex trifoliataegundo}, which is attested with phonemic irregularities in the Philippines, northern Sulawesi, and in various languages from Bali westwards.

Not all of the plant names in this group come from the west. The breadfruit, \textit{Artocarpus communis, **kuluy}, is of Pacific origin. Its name spread throughout Indonesia and into the Philippines; however it displays numerous phonological discrepancies and cannot be an inheritance for that reason. The following names show various spreads from east to west: the

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15 Many of the languages, however, show normal reflexes for this name, and in fact it is very widespread, found as far east as Eastern New Guinea and the Solomon Islands: for example, Tolai \textit{kago} (M. Ross, pers.comm.). Only in Tolai does the form follow the sound laws, but in other places in the Solomon Islands where this word occurs, it does not have the sound correspondences of inherited forms (M. Ross, pers.comm.). There is another problem with the Tolai form: it shows an /o/ in the final syllable, and it is unknown what the reflex of PAN *u* is in the final closed syllable in Proto Oceanic. Therefore, it is most certainly the case that this word could have spread eastwards in recent times (probably through Pidgin English). This name is also found in languages outside the Austronesian group, for example, in Singhalese \textit{kan kun}. 
name \textit{[iukunj]} for the breadfruit, \textit{Artocarpus communis}, is attested in languages of the Molucca Islands and in Javanese and Malay. It refers to the seedless varieties as opposed to words connected with \textit{**kuluy}, which in these languages refers to the seeded varieties. The name for the lumber tree, \textit{[kukunj]}, \textit{Schoutenia ovata}, is found in Java and the Lesser Sunda Islands. The name \textit{[luka]} for \textit{Gnetum gnemon} is attested for Malay, Sundanese, the languages of Sulawesi and the Lesser Sunda Islands. The sugu palm, \textit{**yumbiya}, \textit{Metroxylon sagu}, also comes from the East, but the name is reconstructable for a subgroup which contains the languages of eastern Indonesia and Oceania, though not for PAN.

4. PLANT NAMES DISTRIBUTED OVER A SMALL AREA AND ASSIGNABLE TO A LOW-ORDER SUBGROUP

When we deal with plant names confined to a small area, it becomes more difficult to determine if the names are borrowed or inherited from a low-order protolanguage, for there tends to be less difference between the phonology of borrowed forms and inherited forms. Most scholars who reconstruct low-order subgroups assign to the protolanguage a form common to several languages if there is no countervailing phonological evidence. We can list a few such forms here. They are far too restricted in distribution to be assignable to PAN, yet they have the phonological shapes that correspond regularly as if they were inherited, and they are attested in languages for which it makes sense to say they are all members of the same subgroup. The following names belong in this group: \textit{**ipil}, \textit{Intsia bijuga/retusa}, a seacoast tree, with names attested for the Philippines, the Lesser Sunda Islands and Sulawesi; \textit{**baksaw}, \textit{Rhizophora} spp., a mangrove, attested for northern Sumatra, Malay, southern Sulawesi and the Philippines; \textit{**tkey}, a name given to \textit{Fimbristylis globulosa} and other reeds which produce fibre for mats. Their name is attested for the Philippines (only in Bisayan), northern Sulawesi, Malay and Malagasy. (In the latter two languages, the reflex refers to the product 'mat', but in a Malay dialect it also refers to a plant.) Also in this group is \textit{**papa}, \textit{Vitex pubescens}, the name of which is similarly distributed. There is also an attestation for the Numfor language in Irian Jaya, but this is probably a borrowing. The \textit{Vitex pubescens} is an important hardwood. In many of the languages which attest this name, there is a prefix with various shapes. Blust suggests that these pseudo-prefixes, which occur in terminology for flora, fauna and other sorts of terminology as well, can be explained as secondary developments within each of the individual languages, and the root is still inherited. This suggestion strikes me as reasonable. It is a common phenomenon in languages of the Philippines and Indonesia to have a certain stock of meaningless prefixes which reshape the first syllable or the first two syllables of trisyllabic or longer words referring to flora, fauna or other terminologies. The form \textit{**qandasaw} is attested for Cebuano, Mongondow and Malay, but the reference is to quite different plants in the Philippines and northern Sulawesi than those in Malay. The name is also found in other languages, where it is clearly a borrowing from Malay. The name \textit{**binuwag} for the \textit{Octomeles sumatrana} is attested in languages of Sumatra, Kalimantan and Sulawesi. This name also appears in Tagalog and Malay with very different reference. This name may in fact be inherited from the protolanguage of the Western-Indonesia-Philippine subgroup, but there are phonological irregularities in the first syllable. The name \textit{**lambayug} is applied to several creepers and is found in the Philippines and Malay. Finally in the western languages, we have \textit{**patuug}, the \textit{Gigantochloa levis} or perhaps some other large bamboos, which is attested for Cebuano and Mongondow and various languages of southern and central Sulawesi. For eastern languages there is the form \textit{**yumbiya}, referring to \textit{Metroxylon sagu}, which is phonologically regular
there. The same name occurs in Nusantara and in a couple of languages of the Philippines, but there are phonological irregularities in some cases, which indicates that the form is a borrowing and not inherited.

5. OTHER SECONDARY PLANT NAMES

Some of the plant names are found in contiguous languages which cannot be considered to belong to a single subgroup. In these cases it is the very fact that the range of spread has nothing to do with subgrouping and further that the spread is over a contiguous area which argues that the form has been secondarily spread. Plant names in this group are: \textit{[bapa]}, \textit{Orania palindum}, a palm (Philippines); and \textit{Pandanu tectorius} (Sulawesi), attested from Mindoro south through Sulawesi. The following names have a similar distribution but are also attested in Flores: \textit{[naga]}, \textit{Calamus usitatus}, a kind of rattan; and \textit{[puni]}, the name given to several genera of tree ferns. The latter also shows some irregularities of correspondence. A narrower distribution is shown by the following form: \textit{[abaqa]}, \textit{Cordyline fruticosa}. This name is attested for languages of northern Sulawesi, Kalimantan and Malay. The name \textit{[baluqu]},\footnote{Blust (1980a) connects Paiwan \textit{valuniq}, the fruit of the \textit{Ficus wightiana}, with this name, but the lack of phonological correspondence makes the connection unlikely. Aside from that, the name must be assigned to a protolanguage because of the scattered nature of the attestation.} which refers to a kind of mango, is attested only in coastal Kalimantan and Mindanao. The name \textit{[telu]} a kind of bamboo, is attested only in Kalimantan and southern Sulawesi. The name \textit{[kabu]} \textit{Ceiba pentandra}, the kapok, is that of an introduced plant and is attested in Sumatra and Sulawesi (cf. \textit{[kapu]}, below). The name \textit{[kanaga]}, \textit{Cananga odorata}, the ilang-ilang tree, is attested only in Java, southern Kalimantan, the Lesser Sunda Islands and southern Sulawesi.

Some of these areal names refer to plants that are distributed in eastern Indonesia and Oceania and started in the east: \textit{[kanawa]}, \textit{Cordia} spp., is attested for Ambon, Gilbertese, Nukuoro and Palau. There is also a citation for Makassarese, the reference of which is unknown, and Iban \textit{kanawa} which is a kind of betel palm, a name which cannot be connected with the others. Similarly, \textit{[laji]} a poison-producing tree is attested for various western Oceanic languages. Blust also connects Kambera (Sumba) \textit{lari} with this, but the reference of \textit{lari} (also called \textit{lani}) is to a very different kind of tree, and there probably is no connection. Other names have spread westwards in the same way as \textit{[kuluy]} (discussed in section 3.1). One such name is \textit{[wai]}, a kind of mango, the name of which is attested in western Oceanic languages and northern Sulawesi.\footnote{There are two attestations in Formosa: Tsou \textit{suai} and Bunun \textit{suai}, which could possibly be connected with these forms. However, as Blust (1986:112) points out, the resemblance is probably coincidental, and the forms in Tsou and Bunun could be explained as a borrowing from a Min dialect.}

Some of these words are attested only in languages in the group which is strongly influenced by Malay: Toba Batak, Javanese, Sundanese, Ngaju Dayak and Malagasy: \textit{[medan]}, a name given to various lauraceous trees. This name is also attested for Tawsug (Sulu, Philippines) where it refers to a local kind of \textit{Artocarpus, Artocarpus odoratissima}. Other names: \textit{[garungaj]}, \textit{Cratoxylon} sp., a forest tree; \textit{[pinaj]}, \textit{Areca catechu}, the betel tree; \textit{[pisan]}, the banana; and \textit{[bariin]}, the \textit{Ficus benjamina}. 
In fact it is also a fairly strong indication of secondary spread when the form is confined to the core languages influenced by Malay (the languages of Sumatra, Java, Borneo), as well as Bugis, Makassarese, Balinese and Sasak. In many of the cases there are some phonological irregularities which make inheritance from a protolanguage impossible. The name \[qambulu\], the sagu, *Metroxylon sagu*, is a name attested in Balinese as well as in the core languages; \[gelam\], *Melaleuca leucadendron*, \[gadu\], *Dioscorea hispida*, and \[tele\], *Clitorea ternatea*, are attested for southern Sulawesi as well as the core languages. *Clitorea ternatea* is a plant of South American origin. The name \[galingga\] for the ‘Acapulco’ of the Philippines, a shrub introduced from the New World, *Cassia alata*, is attested for Sasak as well as the core languages. Some of the plant names do not show phonological irregularities, but the distribution and the history of the plant to which the name refers indicates without a doubt that the name is secondary. First of all, there is the name \[kapuk\], for the *Ceiba pentandra*, the kapok tree, an introduced plant, which is attested in our core languages and in the southern Philippines, and finally, there is the word \[lega\] ‘sesame’ which is attested throughout Nusantara and the Philippines and shows complete regularity. The plant is an introduction from the Middle East.\(^{18}\)

**APPENDIX: LIST OF PLANTS\(^{19}\)**

\[adámay\] ‘*Pipturus argenteus*’

CEB handalámay ‘*Pipturus argenteus*’; Maranao aramai ‘*Pipturus arborescens*’;

Ngadha zama ‘small tree with armorial bark’

\(^{18}\) Dempwolff (1938:95) thought that the same name was also attested in Oceanic languages and quotes Tongan *enga* and Samoan *lenga* ‘turmeric powder’. In fact these forms would reflect PAN *denga* (if such a form exists). They do not correspond phonologically to \[*lenga* in western languages.

\(^{19}\) A selected list of citations in the literature is given to provide an idea of the range of the names. The citations come from Heyne (1950) and De Clercq (1927) for Indonesia, and from Brown (1946) and Quisumbing (1951) for the Philippines. For the Formosan languages the citations come from Tsuvida (1976). POC forms are cited from Ross (1988), and Polynesian names from Biggs (n.d. – 1990 POLLEX printout used in this paper). Other language data come from Blust (1980a, 1983-84a, 1986). The language names are listed as cited in these references. De Clercq in some cases simply mentions the region. The transcriptions are given as I found them in the references with the following exceptions: in Indonesian languages \(oc\) is transcribed as \(u\), \(dj\) as \(j\) and \(y\) as \(c\). For the Formosan languages I have made the following changes: Paiwan orthography follows Ferrell (1982), and other consonants cited with diacritics in the literature are transcribed with an \(h\) following the letter representing the consonant. For many of the languages cited it is not known precisely how they reflect the phonology of Proto Austronesian, and I have not indicated which forms show irregularities and which follow the rules of phonology. A final proof showing the forms which do follow the phonological rules will have to await the reconstruction of the Proto Austronesian vocabulary which I plan to finish in the next two years. The language abbreviations are as follows:

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<th>Language</th>
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<td>Balinese</td>
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...
[amaya] ‘Diospyrus discolor’
RUK kamea ‘mango’; PAI kamaya ‘mango or persimmon’; Amis, Itbayatan kamaya, HNO kamayá, CEB amága ‘Diospyros discolor’; MAL maa keluang ‘Melanorrhoea curtisii (no connection)’; Mae mara, MAK amara ‘sp. unidentified but produces black wood’

*amit ‘Solanum nigrum’
KAN namfci, SAR tami, TSO mic, PAI samci, Ifugao, Bontok amti, TAG anti, Sulu muti, MAL terong mere-anti, JAV ranti, OJV ranti gunung

[anabu] ‘Abroma agusta’
HNO, CEB anabu, PAL lab

*anuli ‘Pisonia alba’
HNO anuling, MGG nuling, Ngadha nuli

[aunti] ‘Cassia sp.’
CEB asunting ‘Cassia alata’; OJV tunting ‘Cassia sp.’

*báyu ‘Hibiscus tiliaceus’
ILK, Bontoc, Tinggian bágo, TAG balibágo, Bima vau, NGD baro, MLG baro/varo, MAL baru, pohon baguk, OJV, Sasa, MAK bagu, FIJ vau, TON, FUT, SAM, dau ‘Hibiscus tiliaceus’; N. Sulawesi, TAG, CEB bágu ‘Gnetum gnemon’

**baksaw ‘Rhizophora sp.’
CEB bakhaw, TAG, MAL, NGD bakaw, JAV bako, FIJ mako, TON pako, SAM pa?o (FIJ, TON, SAM trees not connected with this)

**báku ‘Crinum asiaticum’
ILK, TAG, CEB bákung, MAK, BUG, JAV, MAL bákung, NGD bakong, MLG vahuna, TBB bahun

**balaw ‘k.o. forest product’
ILK balaw ‘Agathis philippinensis’; CEB baláw ‘Dipterocarpus grandiflorus/gracilis’; MAL balaw ‘Shorea sp.’

[balimbi] ‘Averrhoa bilimbi’
TAG, Minahasa balimbing, Bima limbi, Achenese limeng, Batak balingbing, Nias malimbi, MAL belimbing, SUN calingcing, JAV, BAL blimbing

[baluy] ‘plant producing saponaceous material’
TAG balúgo, HNO balugú, Samar-Leyte barúgo, Central Filippines (TAG, CEB, Tagbanwa etc.) gúgu, Ponesakan cariyu, Timor wiluru, MAL beluru ‘Entada phaseoloides (also Albizia saponaria in some languages)’; ILK balógo, CEB bayúgo ‘Anacardium occidentalis (cashew)’

[baluq] ‘k.o. mango found in Mindanao, N. Kalimantan’
Maranao balono?, Sangir balunu?, MAL (Brunei, Sarawak) belunuh

[bañay] ‘Smilax sp.’
Atayal balag, KAN vanára, TSO fkoro, RUK (Maga) bláa, RUK (Manturan) valau, PAI vala, Bunun, Bontok blank, ILK banag, KPP barag, TAG banága, BUG banar, MAL banawbanar
THE PLACE OF PLANT NAMES IN RECONSTRUCTING PROTO AUSTRONESIAN

**banban 'Donax canniformis'**
ILK, TAG, CEB, Sulu banban, JAV, NGD bambah, MAL bambah, SUN bangban

(\[
\text{[\text{baña] 'k.o. palm'}}
\]
HNO bang, Aklan banga, Maranao banga, MAK bang 'k.o. palm'; Tae 'Pandanus tectorius'

(\[
\text{[bānkudō] 'Morinda citrifolia'}}
\]
TAG, CEB bangkūro, NGD mangkudo, JAV kemudu, MAL bengkudu/mengkudu

**bānkukwāng 'Pandanus sp.'**
TAG bangkuang 'Scirpus grossus' (k.o. aquatic plant used in weaving); NGD bangkuang 'k.o. palm growth'; SUN cangkuwang, MLG vakuana, MAL kengkkuwang/mengkkuwang, Kubu kengkuwang 'Pandanus furcatus'; TBB bakkuwang, JAV, SUN bangkuwang, MAL bengkuwang, MAK bangkowang 'Pachyrhizus erosus'

(\[
\text{[bāriqin] 'Ficus benjamina'}}
\]
JAV waringin, SUN tjaringen, MAL beringin, NGD baringen, TBB baringin

(\[
\text{[batag] 'Sorghum vulgare'}}
\]
HNO, CEB batād, Maranao bantad, MAK batara? , MAL betari , Atayal basag 'millet'; Tetum batar 'maize'

(\[
\text{[bawān] 'garlic, onion'}}
\]
TAG, JAV, MAL, NGD, bawang, TBB baoang

(\[
\text{[bayān] 'Amaranthus sp.'}
\]
TAG bayang-bayang 'Amaranthus spinosus'; MAL bayam, JAV baem, Molucca Is bayang 'Amaranthus sp.'; TBB beang-beang 'k.o. plant'

**bāyu 'Pterospermum sp.'**
Zambales, Pangasinan, TAG, Bikol, HNO, Sulu, bayug, Minahasa wayu, MAL, SUN, JAV wayur/bayur 'Pterospermum sp.'; MAK bañoro? 'timber tree'; Mongondow bayug 'k.o. small sugar palm'

*bejās 'husked rice'
Atayal boax, Sediq buwax, KAN vəara, TSO ərsa, RUK (Maga) basæ, Amis velaa, TAG bigás, JAV wos, NGD behas, MAL beras, TBB boras 'husked rice'; PAI vat 'seed'

(\[
\text{[bejkal] 'Nauclea spp.'}
\]
Aklan, CEB, MGG, Iban bangkal, MAL bengkal/mengkal, MAK bangkala?

*betēn 'Panicum viride (millet)'
SAR abacanga, RUK bacanga, BUG beteng, Roti betēk, Buru bétēn, Kai botan, Tanimbar botan
*biyq ‘Alocasia sp.’
RUK (Mantauran) vi’a, ILK, MAK, TBB bi rā, TAG, CEB bīgāq, Bima wīa, Kei wīr, NGD bi hā, MLG vīa, Karo Batak bi rāh, FIJ vīa ‘Alocasia sp.’; PUY bi rā? ‘leaf’ 20

**binuwaq ‘k.o. tree’
TAG binuang/banuang ‘Macaranga grandiflora/Endospermum peltatum’; NGD, Karo Batak banuang, Minahasan winuang ‘Octomeles sp.’; MAL benuang ‘Sterculia sp.’

*bita(n)quy ‘Calophyllum inophyllum’
ILK bitāq, CEB bitaqu, PAL btaches, MLG (provincial) vintano ‘a tree’; MAL bintangur, TBB bitangur, Oceanic: Seimat hita, Loniu pitow, PPN *feta’u

**bu yeney/beyune ‘Antidesma bunius’
Bontok bugnei, Ibanag vunnai, TAG bignay, CEB bugnay, MAK, BUG bu’né, JAV wuni, MAL berunai, bun

*būluq ‘generic name for bamboo’
KAN vulû?u, RUK(Maga) bûru, Amis vulûq, PUY vuruh, TAG bûhó?, CEB bûlu?, Mongondow bulu, MAK bulo, Kenyah, MAL, Karo Batak buluh ‘bamboo; PAI vulûq ‘spear’; SAM polo ‘cut’ (not connected)

[bunut] ‘Pterandra coerulescens’
NGD bunot, JAV wunut, MAL bunut21

*butún ‘Barringtonia asiatica’
Ivatan vutun, TAG, Bik, JAV, MAL butun, NGD buton, Gorontalo hutu, BUG butung, Weda keptun, Minahasa vitung, MAL (Menadonese) bitung, Sangir, Philippines (various languages) bitun, CEB bitûn/bitûqun, FIJ vutu, SAA huu, PPN *futu

*buwaq ‘Areca cathechu’
ILK bóa, Ibanag búa, BAL, Lampung buwah, Sasak búa, Roti mbuwa, Timor, Weda pu, Buru fua, Aru buya, N. New Guinea bueh, POC *buak ‘Areca’; KAN vua’e ‘orange’; PAI vuaq ‘k.o. tuber’; PUY buah, MAL buah ‘fruit’

*dapdap ‘Erythrina sp.’
TAG dapdap, Roti dela, NGD dasn, JAV dhadhap, MAL dedap, TBB dapdap, Buli ololaf, FIJ rara ‘Erythrina’; PPN *lala ‘tree species’

*dagqu ‘Dracontomelum edule’
ILK daó, CEB daqú, MGG sa?u, SUN dahu, JAV rau, MAL rau, Simalungun da’u ‘Dracontomelum edule’; KAN caa’u, RUK (Tona) daw, PUY dahu ‘Sapindus mukorossi’; OJV rahu ‘k.o. breadfruit’ 22

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20 Li (this volume) points out that the change in meaning from ‘Alocasia’ to ‘leaf’ came from the common practice of using the Alocasia leaf for wrapping.
21 Blust (1980a) also quotes bunut as the name of a forest tree.
22 Zoetmulder (1982: 1481) says this is from Sanskrit dahu.
[deyuŋ] see [yeduŋ]

**ditāq 'Alstonia scholaris'
   ILK dirīta, TAG ditāʔ, Maranao ditaʔ, MGG sita, MAK rita, Bima rida, Ambon rite

[gaduŋ] 'Dioscorea hispida'
   MAK, MAL, Sasak gadung, JAV gadhong, OJV gadhung, TBB gadong,
   Tiruray gadung belatung ‘mongo bean’

[galiŋgan] 'Cassia alata'
   Baree galingga, Sasak, JAV, MAL gelinggang, NGD, TBB galinggang

[galugaq] 'Bixa orellana'
   Maranao galogaʔ, MAL geluga 'Bixa orellana'; OJV galuga 'k.o. red dye'

[garunggan] 'Cratoxylon spp.'
   NGD, TBB garunggang, MLG harunggana, MAL geronggang

[gelam] 'Melaleuca leucadendra'
   SUN, JAV, MAL gelam, NGD galam, Batak inggolam, MAK baru gelang,
   BUG waru gelang

[yeduŋ] 'Trema orientalis'
   PUY rihnum, ILK aradon/pangaradāngen, Ibanag agandung, TAG
   inugdung/inugdun, CEB hanagdung, Sulu alindagun, JAV anggrung,
   MAL mendarung, Minang bandurung, TBB landoyung

*yiq 'Imperata cylindrica'
   KAN ṭaʔa, TSO vrio, Bunun liah, Maranao giʔ, Proto Sangir *ore, Bare'e
   le, Tae ria, MAK rea, Roti li, MGG riʔi, Weda ije, SUN eurih, Karo Batak rih,
   Gayo jih

**yumbiya 'Metroxylon sagu'
   CEB lumbiya,23 Tontemboan rumbia, Sausu (Central Sulawesi) pun labia,
   BUG rumpia, MAK rumbia, Ceram ripia, Ambon laia, leia, ripia, Aru rabian,
   NGD hambilā, MLG ruflia, MAL, TBB rumbia, Motu rabia, POC *Rabia

[ijuk] 'Arenga pinnata'
   TAG irok, CEB ibyuk/idyuk ‘Arenga pinnata’; MAL, TBB ijuk ‘fibres from the
   Arenga palm’

**ipil 'Intsia bijuga/retusa'
   TAG ipil, Bare'e opili, Gorontalo ipilo, N. Sulawesi ipil, BUG, Ende (Flores),
   Alor ipi, MAL ipil 'Intsia'; To ifi 'Inocarpus edulis'24

*jabi 'Ficus sp.'
   MLG zavi 'Ficus trichopoda'; TBB jabi-jabi 'Ficus rumphii'; FIJ savirewa
   'Ficus tintoria'

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23 In the Philippines this name is only attested in Cebuano and Bagobo.
24 Grace (1969) states that this name should be reconstructed as *qipil, but I find no citations to back up
   this view. It is questionable that there is a connection between the name for Intsia sp. in the Philippines
   and Indonesia and the name for Inocarpus in the East. The plants have little in common.
*jalateng ‘Laportea sp. (and other stinging trees)’
   PUY ringathen, Ibanag aldatang, Igorot adalateng, TAG lingátung, MAK, BUG lalatang, Sasa jelateng, JAV latong, MAL jelatang, TBB latong, SAA nunu-ao, FIJ salato, PPN *salato

[jarañaw/jariñaw] ‘Acorus calamus (sweet flag)’
   ILK diálogo/dáraw, Bontoc déngaw, Minahasa karimenga, Bare’e kariyang, MAK, BUG karimanga, JAV dringo, NGD rangaw, MAL jeringau/jerangau, MAL (Banjar) riyangau, FIJ cago

[kabu] ‘Ceiba pentandra’
   Mandar, MAL kabu-kabu, MGG kawu, TBB habu-habu

[kalumpar] ‘Sterculia foetida’
   CEB kalumpang, MAL kelumpang, Bare’e kayumpang/kalumpang, BUG alumpang/alupang/kalupa, MAK kalumpang, TBB haluppang

[kamañi] ‘Ocimum sanctum’
   HNO kamángi, Sasak kemangi, MAL selasih kemangi

[kamaya] see [amaya]

[kamuniñ] ‘Murraya sp.’
   KPP, TAG, Bikol, CEB kaming, Tonsawa kamuni, Bare’e kamoni, Buru kamoné, MAK kamuning, OJV, MAL, MGG kemuning

[kanañå] ‘Cananga odorata’
   MAK, Bima, OJV, NGD kananga, MGG kenanga

[kanawa] ‘Cordia spp.’
   PAL keláw, Ambon MAL, Gilbertese kanawa, Nukuoro ganava ‘Cordia spp.’; MAK kanawa ‘k.o. tree’; Iban kanawa ‘k.o. palm’

[kanjkuñ] ‘Ipomea reptans’
   TAG, JAV, NGD, MAL, Molucca Is kangkung, ILK, CEB, tangkung

[kapuk] ‘Ceiba pentandra’
   Sulu, JAV, MAL kapuk, NGD kapok

*katapañ ‘Terminalia catappa’
   MAK, JAV katapang, MLG hatafana, MAL ketapang ‘Terminalia’; Manobo katapang ‘Garcinia vidalii’; FUT katafa ‘name of plant’; PPN *katafa ‘frigatebird’

[kalambiñ] ‘Schleichera oleosa’
   Roti kusambi, Sasak kesambi?, Kambera kahambi, JAV, MAL kesambi

*kawáyan (cf. qiwéy) ‘generic name for bamboo’
   RUK kavadhana, PAI kavayan, PUY kawayan, Western Bukidnon Manobo kewayan, Buru kawan

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25 This Fijian form is listed by Dempwolff (1938:45), and he defines it at as ‘turneric’, but I did not find it in any of my sources.
[kenduŋ] ‘shrub or small tree’
   II.K kendōng ‘Memecylon ovatum/umbellatum’; Iban kendong ‘Garcina spp.’;
   MAL kendungan ‘Symlocos ferruginea’

[kundur] ‘Benincasa cerifera’
   TAG, CEB (and elsewhere in the Philippines) kundul, MAL kundur, TBB
gundur ‘Benincasa’; MLG hundru ‘pumpkin’

[kukun] ‘Schoutenia ovata’
   MGG, Rembong kukung, SUN harikukun, OJV halikukun/walikukun, Madura
   kokon

**kuluy ‘Artocarpus communis’
   CEB kulu, Minahasa kulub, Mongondow kulud, MGG kolo, MAL
   kulur/kalawi/keluwih, JAV keluwih, POC *kuluy, PPN *kulu

[lagundi] ‘Vitex trifolia/negundo’
   Ibanag, TAG, CEB lagundi, Minahasa lagunde, BAL ligundi, MAL
   lenggundi, Minang silagundi, Kario Batak salagundi

**laji ‘tree with poisonous sap’
   PAL ias ‘poison-producing tree from river banks’; Kambera lari ‘tree from
   estuaries’; Kwaio kailasi ‘poisonous tree’; Mota las, SAA lasi ‘tree with juices
   causing sores’

**lambáyuŋ ‘Ipomoea pes caprae’
   II.K, CEB lambáyuŋ, Maranao rambayong ‘Ipomoea pes caprae’; MAL
   lembayung/rembayung ‘Eichomia crassipes (water hyacynth)’; Minang
   lambayung ‘Basella rubra’

**lampuyáŋ ‘name given to various ginger plants in different languages’
   TAG, CEB lampuyáŋ ‘Zingiber serumbet’; Panay lampuyang ‘turmeric’; JAV,
   MAL lampuyang ‘k.o. ginger plant’; NGD lampuyang ‘k.o. ginger plant’

**lamún ‘Enhalus acoroides (shallow water sea grass)’
   TAG, Bikol lamún, JAV jelamun, MAL lamun/jariambon, PAL iaml
   ‘Limnophila aromatica (k.o. swamp plant)’; MGG lamung ‘aquatic moss’;
   Sasak lamun ‘duckweed’

[laŋkuwas] ‘Languas galanga’
   TAG, Aklan, Bisayan langkawas, Minahasa lingkowas, Gorontalo lingkobato,
   MAK langkuasa, Roti langkuas, Buru linguas

*laqeya ‘Zingiber officinale’
   CEB lay’a, Minahasa liya/leya/ria, Mongondow luya, MAK laya, Sikka lia,
   Bima réya, Sumba aliya, Wetar lia, Aru laya, BAL lahya, MAL halia, Lampung
   lahia

*látuŋ ‘k.o. edible seaweed’
   CEB látu, Roti, Yamdena latu, MAL latuh

[leŋá] ‘Sesamum orientale’
   TAG lingá, CEB lungá/langá, OJV, MAL lenga, NGD lengo, TBB longa
[limau] ‘Citrus’
Portuguese limaõ, MAL, NGD limau, North Sulawesi, Central Sulawesi limu/lemo, BUG, Halmahera lemo

*lukút ‘k.o. parasitic plant’
RUK ukucu, PAI rukuts, PUY rukuts ‘Asplenium nidus’; Chamorro lúluhot ‘Maytenus thomasonii’; Uma luku? ‘epiphyte’; Li’o luku ‘tree with edible fruit’ (not connected); SUN lukut ‘duckweed, moss’; MAL lukut ‘long moss (in contrast to lichen)’; MAL (Banjar) lukut ‘parasite or creeper’; Iban lukut ‘moss, lichen, algae’

[mali] ‘Leea spp.’
Tag, MKK, Minahasa mali-mali, Samar-Leyte, Panay amamali, MGG mali, MAL mali-mali, memali

[meda] ‘laurel’
NGD madang, TBB modang, MAL medang ‘laurel’; Sulu marang ‘Artocarpus odoratissima’ (not connected)

*muntay ‘Citrus’
Maranao montai, Tiruray muntey, Subanun muntay, Minahasa munte, Mongondow muntoi, Uma munte, BUG amunte, Roti munde, Ceram amusi, MGG munta, BAL jeruk muntis, Mentawai muntei, Aceh munteuy

**náya ‘Pterocarpus indicus’
ILK narrá, Bikol nára (in placename: Nága), CEB nága, Maranao, Tiruray nara, PAL las, Tonsea naga, Roti na?qa, MGG, Bima nara, Solor kenaha, Motu nara, Gitua (New Guinea) nara

[naga] ‘k.o. rattan’
Dumagat (Luzon), Maranao, Mongondow, MGG nangka, Tiruray nongo, Sangir ve nanga

[nanka] ‘Artocarpus heterophyllus’
TAG langka?, CEB nangka?, Mongondow, JAV, NGD, MAL nangka, Bare’e nanaka, Tetum naka, Weda, N.W. New Guinea naka

*niniq ‘Donax canniformis’
Yami, Itbayatan nini, MGG, Rembong nini? ‘Donax’; Nggela, Lau nini ‘k.o. bush yielding stems used in thatching’

*nipa ‘Nipa fruticans’
TAG, CEB nipaq, MAK, BUG, Bima, Sula nipah, NGD ipah, Karo Batak, Aceh, OJV nipah, Nias nifa

**nituq ‘climbing vine – usually Lygodium sp.’

*ńiyuy 'Cocos nucifera'

TAG niyog, Mandar (dialectal) nyuh, Roti no, Bima niu, NGD eñoh, MAL niur, TBB niur, Buru niwel, niwa, W. New Guinea nu, N.W. New Guinea niweh, niu, nyunyuwa, PPN *niu

*nunúk 'Ficus benjamina' (dwelling of supernatural beings)

Aklan nunók, Maranao nonok, Tiruray, Bima, Maloh (Sarawak), Sangir nunuk, Uma nunu?, Roti, Raluana, Leti, FIJ nunu, 'Ficus'; TAG núnu? 'goblin'; SUN nunuk 'k.o. ghost'

**payatpat 'Sonneratia sp.'

TAG, CEB pagatpat, MAK parapa, BUG parepa, MLG farafala,27 MAL perepat 'Sonneratia'; Ponosakan poyopat 'Rhizophora'; TBB parapat 'k.o. bamboo'

*págey 'rice plant'

Atayal pagay, TSO pai, Saisiat, Pazeh pazay, RUK págai, PAI páday, Amis panay, TAG pálay, Gorontalo pale, Bare'e pae, Mandar pare, JAV pari, NGD pari, MAL padi 'rice'; MLG tsimparifari 'wild rice'

**páki 'fern (esp. Diplazium esculentum)'

TAG pakó, CEB pakú, Minahasa, MAK, BUG, SUN, OJV, MAL paku, Tonsawa pau, 'fern'; MLG fahō 'palm-like shrub that yields sagu, Cycas circinales'; SAA he?u 'k.o. tree'

*pajudañ 'Pandanus spp.'

TAG, NGD, MAL, TBB pandan, CEB pangdan, Gorontalo ponda, MAK pandang, Weda pondak, JAV pangdan, MLG fandrana, FIJ vadra 'pandanus'; PPN *lala 'pandanus mat'; Atayal pangran, RUK pangudañ, PAI pungudañ, PUY pungudhal 'pineapple'

**pañí 'Pangium edule'

Samar-Leyte, Panay, Maranao, Minahasa, Bare'e, MAK, BUG, MAL (Molucca Is), OJV, Dayak (S.E. Kalimantan), Dairi Batak pangi

**papa/pampa 'Vitex pubescens'

Bisayan salingkapa, Magindanao kulimpapa, Subanon, Sulu kalipapa, MGG pampa 'molave'; MAK gulimpapa, NGD kalapapa 'tree with hard wood'; Numfor baf 'Vitex cofassus'

[paria/pariaq] 'Momordica charantia'

Isneg, ILK, CEB pariyá, TAG ampaláyá, Maranao, Uma paria?, Tiruray feriya?, Tai, MAK paria, Ceram papari, JAV pare, MAL pería/pepare

*pásuq 'k.o. mango'

TAG, CEB páhu?, MGG pau, Roti mpaø, Kai faw, JAV poh, MAL pauh 'mango'; FIJ bau 'Sapotaceae sp.'

**patuñ 'k.o. large bamboo'

CEB, Mongondow, Tai patung, Bare'e patu, MAK pattung, BAL petung, MAL petung 'bamboo'; MAL pematung 'conduit'

27 Quoted by Burkill (1966:2090).
*pulút 'Urena lobata'

KAN puucu, PAI puluts, PUY puruth, Isinai poot si nuang, MGG pulut ‘Urena’; MAL pulut-pulut ‘mucilaginous plants, esp. Urena lobata’; Kayan pulut/pepulut ‘rubber tree’; Bikol pulut ‘glued’; Samar-Leyte pulut ‘sticky’

[puni] ‘tree fern’
Maranao poni, Tombulu apuné?, Bare’e ampuni, Tae puné

**putat ‘Barringtonia spp.’
TAG putat/pútad, CEB pútat, OJV, JAV, NGD, MAL putat ‘Barringtonia spp.’; MLG futatra ‘Butonica apiculata’

*puti/punti ‘banana’
Tonsea, Tontemboan, Bare’e, Lampung punti, MAK unti, BUG uti, OJV puti, Kalimantan puti/pute/punti, MLG untsi, Simalungun pusi, Komiai (S.W. New Guinea) fun, FIJ fudi, SAA hutsi, PPN *futi ‘banana’; MAL buah punti ‘k.o. banana’; MLG funtsi ‘traveller’s palm’

**qaya ‘Ficus spp.’
Atayal qaa?, Atayal (Matabalay) ?aga?,28 Sangir aha/ara, Mongondow aga, Buru ahat, MGG, Ngdha, Sasak, Pakpak Batak ara, BAL aha, OJV hara, Iban ara?

*qaiy/am ‘plant with strong stalk’
Bikol agsam ‘Lygodium sp. – a slender climbing fern’; Iban, MAL resam ‘Gleichenia sp.’; TBB arsam ‘k.o. upright fern’; FIJ caca ‘Acrostichum aureum’; TSO resma, Bunun (Ishbukun dialect) xaslam, Kavalan qisam ‘Miscanthus floridulus’

*qayúsug/qayúsug ‘Casuarina equisetifolia’
CEB agũhu?, TBB aru, MAL eru, Minang haru, FIJ cau, SAA selu

*qajelay ‘Coix lachryma-jobi’
CEB aglay, Tetum, Roti dele, SUN hanjeli, JAV jali, OJV jaheli, NGD jelái, MAL enjelai

*qañůñar ‘Cordia dichotoma’
KAN ?uñinanga, TSO hônga, RUK (Mantauran) ululanga, PUY halulang, Ibanag, ILK, TAG, Bikol, CEB anunang, Minahasa anonang, nanonang, nonang, kanonang, Buol anuanga, MAK kanunang, MGG nunang, Roti nunak, Timor tatasì nunang, Dayak (S.E. Kalimantan), MAL nunang

[qambulun] ‘Metroxylon sago’
Bajo ambulu, Manobo ambolong, JAV, BAL ambulung/rembulung, Dayak hambulung

[qampela] ‘tree the leaves of which are used to polish: Delima scandens or Tetracera scandens’
NGD hampelas, tampelas, MLG ampoli, JAV rempas, MAL hempelas/mempelas, TBB ampolas, MGG pelas ‘polish’

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28 These Atayal names were supplied by Paul Li (pers.comm.).
**qanásaw 'Arenga pinnata'**
Buol kanaw, Bare'e konau, Bima nao, NGD hanau, MAL (Banjar Masin) hanaw, MAL enau, Simalur anau 'Arenga pinnata'; CEB anáhaw, Mongondow onow 'Livistona sp.'

**qanlaw 'name for various tiliaceous trees'**
Isneg, I.IK alinaw, Kankanay alin?ew, TAG, Ceb, HNO anlaw, Tboli kenilaw, Minahasa, Roti lino, Tontemboan mangilo, MGG níla, Bima rino 'Grewia and Columbia spp.'; MAL nilau, Batak andilo 'Commersonia bartramia'

[qanibu] 'Onosperma spp.'
TAG anibung, Tonsawa ibung, SUN handiwig/liwig, JAV gendiwig, MAL enibung, TBB libung, Lampung hanibung 'Onosperma spp.'; CEB anibung 'Caryota spp.'

*qawuy 'Bambusa spp.'*
KAN ?airu, Saaroa ?auru, TSO oru, PAI qau, Amis qual, Bunun haul, Tontoli auk, Mongondow aug, BUG awo, Ende, Sumba, Solor au, Sikka aur, SUN awi, NGD, MAL hair, Batak aor, Sa'a ãu

*qúbí 'Dioscorea alata (and other yams)'*
TAG, CEB úbi, Roti uti, SUN huwi, JAV, MLG uvi, NGD owi, MAL, TBB ubi, FIJ uvi, SAA uhi, POC *qupi, PPN *qufi

*qúway/quíwey 'Calamus, Daemonorops' (see also *kawáyan)*
Atayal qwani?, KAN ?uái, TSO ?ue, RUK uvaí, PAI quay, Amis quai, TAG úway, Mongondow uwoi, BUG uwe, Roti ué, Alor uwi, S. Halmahera woi, Kai oe, N. New Guinea wai, SUN howe, NGD uei, MAL (Besemah) uwe, Acheh awi, Simalur uwaí, SAA uwi 'rattan'; SAM uu 'k.o. reed'

*semáy/seméy 'Oryza sativa'*
Ibanag ammai, CEB humáy, Simalungun Batak omé, TBB eme 'Oryza'; Amis hemáí, Kuvalan ?mai, PUY sumai 'cooked rice'

[/abaqan] 'Cordyline spp.'
Mongondow taba?ang/toba?ang, Bima, MAL sawang

[/aga] 'Abrus precatorius'
HNO sága, SUN, JAV, BAL, MAL, Karo Batak saga

**/áleŋ 'a dammar-resin-producing tree'**
Atayal hayung, KAN salenga, TSO srônga, RUK (Maga) srônga, PAI taleng, ILK saleng 'pine'; CEB sáling 'Agathis philippinensis'; TAG ságing, CEB sálong 'dammor resin'

[/entul] 'Sandoricum koetjape'
Isneg, TAG, Tiruray santol, MAK sattulu?, MAL sentul, Iban situl

[/epan] 'Caesalpinia sappan'
Ilg sapáng, MGG cepang, Sasak, MAL sepang
**/i yi\'Cordyline fruticosa' */i yi\'  
MAK, BUG siri, MLG sily, PAL sis, POC *jiRi\29  

[/u kun] 'Artocarpus communis'  
Roti suu, Ceram suun, Nusa Laut suuno, JAV, MAL, Lampung sukusun

[/u ka] 'Gnetum gnemon'  
Tontemboan, Bare'e suka, MGG cuka, Kei huk

**suwag 'Flagellaria indica'  
Samar-Leyte, CEB, Manobo huwag, Tonsawa uwe ne angko, Tombulo uwe ne wale, Ambon ai wara, MGG kuwar, Sasmak oar/uar, SUN oar/huar, JAV wowo

**tayum 'Indigofera sp.'  
TAG tayom, CEB tâgum, Minahasa taum, MAK tarung, Roti tauk, Timor taum, Sula, JAV tom, MGG tao, BAL, NGD tahum, SUN, MAL tarum, Lampung talum/talum, TBB tayom

*tale/ 'Colocasia esculenta'  
Minhasa talè, JAV tales, MAL talas, Lampong talos, Angkola Batak tale, Nias talo, FIJ dalo, SAA alo, PPN *talo

*tal/ây 'Terminalia sp.'  
KPP, TAG, CEB talisay, Minahasa talisei, Bare'e talise, Buru lisa, Sula tasi, Weda klis, W. New Guinea kalis, FIJ dalici, PPN *talie/talia, Sa'a älite

tañuđ/tañuij/'mulberry'  
KAN tanúcu, TSO thzucu, RUK tliudhu, Itbayatan tañudh/tanud

**tañbuq ?[tañbuq] 'Phragmites vulgaris'  
HNO tangbu? 'sucker of bamboo'; TAG tambo?, CEB tangbu? 'k.o. grass: Phragmites vulgaris'; MAL tambuh 'k.o. shrub: Euthemis leucocarpa'

*tebús 'sugarcane'  
TSO tfásəə, RUK cubusu, PAI tjevus, TBB tobu, tubó, CEB tubú, JAV, MAL tebu, NGD tewu, FIJ dovu

**teyál 'k.o. hardwood tree' \30  
SAA eohu, POC toRas,\31 Proto Central Pacific *toa\32 'Intsia bijuga', PPN *toa 'Casuarina sp.'

[teñə]'Clitorea ternatea'  
MAK, BUG talang, JAV teleng, MAL telang, TBB tolong

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\29 The names tigre and sigre from various languages in the Philippines (the languages in which these names occur are not clearly stated in our sources) and the name ugi in Ibanag may be connected with this. However, these names refer to the Cordyline roxburghiana.

\30 The root can be reconstructed for PAN, but not referring to a tree name.

\31 Quoted by Biggs (n.d.).

[temu] ‘Curcuma zedoaria’
   TAG tamó, MAK tamu, BUG, JAV, MAL temu, Bima dumu, MLG tamu-
tamu, ‘Curcuma’; FIJ damu-damu ‘red, brown, dun’; To tamu-tamu ‘be
red’

*tegey ‘Ceriops spp.’
   TAG tangal, CEB tungúg, Samar-Leyte tungúg/tungúd/tangág, MAK tangere,
   BUG tengere, MAL tengar, TBB tongor, FIJ dongo, PPN *tongo ‘mangrove’

[terun] ‘Solanum melongena’
   TAG tálóng, Ceram tolon, BAL tehung, JAV, Madura, Sasan, SUN, MAL
terung/terong, TBB torung

*tewi ‘Dolichandrone spathacea’
   ILK tíui, TAG, CEB tiwí, Manobo tewi, MGG tui, MAL daun tuwai
   ‘Dolichandrone’; MAL tui ‘Radermachera gigantea’; Gedaged, Yamdena,
   Roviana, Nggela tui, Nakanai lati ‘timber tree’

**tíkey ‘plant used in making fine mats’
   Cn tikug ‘Fimbristylis globulosa’; Gorontalo tihu, Buol tikagu, Baree tiu, MLG
   tsihi, MAL tikar ‘mat’; S. Sumatra tiker ‘Lepironia mucronata’ (used for mats)

*tuba ‘Derris elliptica’ (and other species of Derris used to poison fish)
   At tatuba?,35 Ivatah tuva, MAK, BUG, SUN tuva, Buru tufa, N.E.
   Halmahera tuvo, JAV, MAL tufa, NGD tuwe, FIJ tuva/nduva, SAA uhe
   ‘Derris’; TAG tóba ‘Barringtonia acutangula’ (used to poison fish); CEB tóba
   ‘Croton tiglium’ (used to poison fish’; TBB tóba ‘k.o. plant used to poison
   fish’

[tudi] ‘Sesbania grandiflora’
   ILK katóday, TAG katurai, Maro todiq, Tiruray tudi?, Mongondow súri,
   MGG, Tetum, Alor, Weda, JAV, MAL turi, Madura tuaoy

**wai ‘mango’ ?*wai
   Minahasa uwai, Sangir uai, Yotefa we, we, Titan weway, Lenkaw awey,
   Motu vaivai

INDEX OF NAMES

LATIN NAMES

Abroma agusta                      [anabu]
Abras precatorius                   [aga]
Acorus calamus                      [jarağaw/jariñaw]
Agathis sp.                         **baláw
Alocasia sp.                        *biyáq
Alstonia scholaris                  **dítáq
Amaranthus sp.                      [bayan]

33 The Tongan form is listed by Dempwolff (1938:130), but I have not found it. In any case the a in the
penult of the Tongan root does not follow the sound laws.
34 Not listed by Burkill. This reference is from Wilkinson (1932, II:608).
35 I have this name from Li (this volume, #6).
Antidesma buniues  
Areca cathecu  
Arenga pinnata  
Artocarpus communis  
Artocarpus heterophyllus  
Averrhoa bilimbi  
Bambusa spp.  
Barringtonia asiatica  
Barringtonia spp.  
Benincasa cerifera  
Bixa orellana  
Caesalpinia sappan  
Calamus  
CalophyUum inophyllum  
Cananga odorata  
Cassia alata  
Casuarina equisetifolia  
Ceiba pentandra  
Ceiba pentandra  
Ceriops spp.  
Citrus  
Clitorea ternatea  
Cocos nucifera  
Coix lachryma-jobi  
Colocasia esculenta  
Cordia dichotoma  
Cordia spp.  
Cordyline fruticosa  
Cordyline spp.  
Cratoxylon spp.  
Crinum asiaticum  
Curcuma zedoaria  
Daemonorops  
Derris elliptica  
Dioscorea alata  
Dioscorea hispida  
Diospyros discolor  
Diplazium esculentum  
Dolichandrone spathacea  
Donax canniformis  
Dracontomelum edule  
Enhulus acoroides  
Entada phaseoloides  
Erythrina sp.  
Ficus benjamina  
Ficus sp.  
Flagellaria indica  
Gleichenia sp.
Gnetum gnemon
Hibiscus tiliaceus
Imperata cylindrica
Indigofera sp.
Intis biijuga/retusa
Ipomea pes caprae
Ipomea reptans
Languas galanga
Laportea sp.
Leea spp.
Lygodium sp.
Melaleuca leucadendron
Metroxylon sagu
Momordica charantia
Morinda citrifolia
Murraya sp.
Nauclea spp.
Nipa fruticans
Ocimum sanctum
Onocosperma spp.
Oryza sativa
Pandanus sp.
Pangium edule
Panicum viride
Phragmites vulgaris
Pipturus argentaeus
Pisonia alba
Pterandra coerulescens
Pterocarpus indicus
Pterospermum sp.
Rhizophora sp.
Sandoricum koetjape
Schleichera oleosa
Schoutenia ovata
Sesamum orientale
Sesbania grandiflora
Smilax sp.
Solanum melongena
Solanum nigrum
Sonneratia sp.
Sorghum vulgare
Sterculia foetida
Terminalia catappa
Trema orientalis
Urena lobata
Vitex pubescens
Vitex trifolia/egundo
Zingiber officinale

[báýu], [šuka]
*yiŋ
**tāyum
**ipil
**lambáyũŋ
[kaŋkũŋ]
[laŋkuwas]
*jalateŋ
[mali]
*qayɪ/am, **nītuq
[gelam]
**yumbiya, [qambulunj]
[paria/pariaq]
[baŋkudu]
[kamuniŋ]
[beŋkbal]
*nīpaŋ
[kamaŋi]
[qaniŋ]
*beyas, *páyey, *semáy/seméy
*paaŋudaŋ, **baŋkuwaŋ
**paŋi
*beŋteŋ
**taŋbuŋ
[adámay]
*anuliŋ
[bunut]
**náya
**báyuy
**baksaw
[fentul]
[kalambí]
[kukun]
[leŋã]
[tudi]
[baŋay]
[teruŋ]
*amiti
**paŋatpat
[batag]
[kalumpañ]
*katapang, *talí/ay
[yeďuŋ]
*pulũt
**papa/pampa
[lagundi]
*laŋqeyay
COMMON NAMES

bamboo (generic name)  *búluq. *káwáyan (cf. qúwey)
bamboo (large kind)  **putuq
banana  *putu/punj
fern (growing in trees)  **fáleg
ginger plants  [puñ]
dammar-resin tree  **lápuyán, *laqeya
hardwood tree  **teyá/t
laurel  [medañ]
mango  [báluj, *pásuq, **wáj
mat and plants for mats  **túqey
mulberry  [táníud/táníuj
onion  [báqa
palm (unidentified)  [nágà, *qúwey
rattan  *beyás
rice (husked)  *semáy/seméy
rice (general)  *páqey
rice (plant)  *lúkút
parasitic plant  *látúq
seaweed  [kenduñ
sugar cane  *tebús
tiliaceous trees  **qanlaw
tree (unidentified)  **bìnúwáj
tree with sandpaper leaves  [qampea/
tree with poisonous sap  **laji
1. INTRODUCTION

Let us take a trip backwards in time in a very special kind of time machine. Its instrument panel has but two controls, labelled RECONSTRUCTION and SUBGROUPING, and its fuel is called DATA.

We are not the first to embark on such a voyage. The first successful one was undertaken over one hundred years ago by Hendrik Kern (1889). There were not many attempts for quite some time thereafter, perhaps because of the need for more fuel – abundant DATA had been amassed by Dempwolff (1938), which have been more than doubled by Blust (1970, 1973, 1980a, 1983-84a, 1986, 1989a). Hence, the time machine has been very active over the last two decades: Isidore Dyen (1971a, 1976), Otto C. Dahl (1976) and Blust (1977a, 1984-85).

We need not rewrite the manual on how to operate both switches. There are excellent, albeit dis harmonious words on SEMANTIC RECONSTRUCTION in the works by Dyen (& Aberle), Dahl and Blust. So too for SUBGROUPING, but there is even more disagreement on this one.\(^1\) The Formosan languages may represent a link with the distant past (since there may be as many as three distinct groups there) or they may be more linked to languages of the Philippines. The languages of the Philippines, Malaysia and most of Indonesia represent another group (Western Austronesian or Hesperonesian).\(^2\) There are also the Central and Eastern Malayo-Polynesian groups (the latter includes some languages from eastern Indonesia and all those in the Pacific islands). If a related word (cognate form) with similar meaning is found in all four, it can clearly be posited for Proto Austronesian (PAN), the protolanguage of highest order. If it is not, then we must look carefully at its distribution. If it is found, for example, only in Formosa and the Philippines, can we safely and ineluctably assume that it represents a continuation of PAN and that it did not spread by borrowing? Would not the collection of a large number of such etyma lead us to caution or even indicate a potentially contrary subgrouping?

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\(^1\) In general, I follow the subgrouping proposed by Blust (1980a:10-13), with one major exception, namely my treatment of innovations shared between Formosan and Western Austronesian languages (the Philippines, Malaysia or greater Indonesia) which I label as Proto Hesperonesian-Formosan (PHF). Where the subgrouping of other scholars would reinterpret any evidence constituting the assignment of a level, I put a question mark after the protolanguage (e.g. PAN?, PMP?, etc.), although the evidence is treated herein as if the reconstruction were valid.

\(^2\) Some scholars reject this as a valid subgroup, but innovations (both widespread and selective) supporting it were presented in Zorc (1986:156,165-168).

We will therefore proceed on our trip through time through thirty semantic categories on a stage by stage basis as if the proposed reconstructions were innovations of that period. If further research raises the level of any given etymon, then the characteristics of the respective higher level will change accordingly.

There are certain areas where this procedure leads to otiose results. For example, RICE AGRICULTURE is probably attributable to early or even pre-Austronesian. Since all signs of it have been lost in Oceanic languages, the reconstructions are here labelled (and dealt with as) Proto Hesperonesian-Formosan (PHF = Western Austronesian + Formosan). Similarly, SEAFARING may have been PAN. However, the indigenous languages of Formosa generally do not have cognates (not surprising for groups that have been pushed inland and upland by foreign invasions), so much of the boating terminology is here labelled Proto Malayo-Polynesian (PMP). Scholars who feel that such strictness is unwarranted may accordingly interpret the appropriate statements at a higher level than that assigned here.

1.1 PROTO AUSTRONESIAN (PAN) GEOGRAPHY AND NATURAL PHENOMENA

Coming upon the earliest settlement, some 8,000 years ago, we note many straightforward phenomena that give us no pause, although we appreciate that we can discern what these people call them. Thus, stone, rock (*batuH) and recurring roots for dust (*+bu) and some form of viscous fluid (*+teq); sky (*lājiti), star (*bi(n)tuqen), moon (*bulaN), night (*Rabi?iH). In some dialects, the word for day (*qal(e)jāw) may have only been distinguished morphologically from the sun itself (*qa(n)jaw; but cf: *waRiH). Meteorologically there was: monsoon wind (*Sa-bāRat), rain wind (south-east) (*timuR), cloud (*Rabun), rain (*quZāN), yielding potable fresh water (*d2a+Nūm), which may also be obtained from a drip, leak (*tūd2uq).

The sea is a point of reference for the natives (*daya towards the interior and *laHūd towards the sea) where there is low tide, exposed reef (*ma-qaCi) and where breakers, surf (*Nabek) roll upon the sand (*qenay), leaving behind foam, bubbles (*bujaq). The terrain includes hill, mound (*bUkij) and lake, pond (*danaw). There is also a clearly identified path or trail (*Zālan).

3 The Proto Malayo-Polynesian level is posited for any reconstruction that does not have a Formosan cognate but is otherwise distributed among the Western, Central and Eastern (Oceanic) subgroups.
4 These dates are my estimates based on the migrations and the kinds of linguistic changes that have occurred and the furthest reaches of the lexicostatistical method. Blust (1984-85:54f.) proposes a time-depth of 6,500 years (c.4500 B.C.), while Bellwood (1985:106) more conservatively suggests 5,000 years ago.
5 Space does not permit the presentation of supporting data for these reconstructions. However, the glossary in the appendix directs the reader to studies which contain such evidence. Conventions include the following:
   (a) Consonant and vowel symbols in these reconstructions follow those proposed by Dyen (1971a:22f.), with the exception of *d with subnumerals (*d2, *d3), which are based on principles outlined in Dahl (1976, 1981); see Zorc (1987) for some scepticism on my part for the distinction between *d and *D (or *d2);
   (b) Accentuated vowels are determined on the basis of conventions established in Zorc (1978, 1983);
   (c) Parentheses are put around ambiguously-determined elements, usually the facultative nasal.
6 A plus sign indicates a proposed submorphemic monosyllabic root, as discussed and exemplified in Blust (1988a, 1988b) or Zorc (1990).
1.2 EARLY WESTERN AUSTRONESIAN (PHF = PAN?)

Over the next millennium, the ecological zone has become higher (peak of a mountain (*qa-pucuk)) and more active (earthquake (*linuR), typhoon, storm, hurricane (*baRiuS), and north wind (*qamIS-an)). We can also discern early vocabulary for lightning (*kilát), open-air, outdoors, midst of (*CaSaw), opposite shore (*Si(m)paR), and channel, flowing (*á+liR). At least two original words have developed alternate forms: sand (*benaqi) and foam, froth (*puCaq; cf: PMP *budaq).

1.3 PROTO MALAYO-POLYNESIAN (PMP) TIMES

Within another millennium (c.3500 B.C.) the group dispersed and was now well aware of numerous maritime phenomena (see sections 2 - 3): littoral sea (*dáRat), island (*nusa), estuary, river mouth (*naqa (dbl: *binaqa)7, lagoon, harbour (*namaw), channel (*sawaq), high tide [cf: *yawn] (*Ruab), flow (*qa+liR, *sa+liR), current (*qáRus), yet another word for wave (*qálun), and saltwater (*takis) as opposed to fresh water (*wáhiR).

These people recognised an inhabited territory/human ecosystem (*banua), which included woods, forest (*qutan) and very rough terrain (mountain (*bulud), mountain range (*qilih), mountain peak, elevated ground (*bunduk) in contrast with plain, level ground (*d2a+taR), a knowledge of cave (*liaq) and echo (*niJal).

The weather was capable of being both cold (*ma-diJ+dilJ) and warm, hot (*ma-panas), which yielded fog (*kabut). Weather of this period or place was windy (*deRes; cf: wind, air *hliIn) and overcast, darkened (*gu(n)+d2em) with perhaps more than a usual amount of lightning (*gu-silaq), lightning that strikes s.t. (*ge+lap), thunder (*duR+duR, *ku+d2ug, *le(IJ)+gur, *n1(IJ)gUIJ), and flood (*bahaq). Either these or earthquakes (encountered previously) made the world shake, tremble, rock (*ninih).

There were preoccupations with dust (*qa+bUk, *qa+puk, *sa+puk, *debu; cf: PHN *a+bug) as well as one process that formed it, decay, crumble (*+bek, *+buk), and forms of light: bright light (*ni+law), flash, sparkle (*+lap), radiance, ray of light (*baná?aR), shine brightly (*dad2aŋ), and the morning/evening star (Venus) (*man)talaq.

1.4 LATER WESTERN AUSTRONESIAN (PHN) DEVELOPMENTS

As numerous groups left on journeys to the south and east across the Pacific, those left behind continued to spread out in the west experiencing more earthquake (*lind2uR) and thunder storm, lightning bolt (*lentiq), thunder (*duR+duR), but perhaps with a lessening in the severity of the weather: cloud [not a raincloud] (*ram+bun),8 aftermath of a storm (*renáy), dew, drizzle (*am+bun), drizzle (*ri+nis), and south wind (*salátan).

Their home continued to be near the sea with new words for high tide (*tá?eb), flow (*sa+luR), current (*seleR), swell, waves (*humbak), and deep water (*túbíR). However, they were drawn inland as well: swampy ground (*latiq), slime (*ban(j)lik), valley, 7 Doublets (dbl), which Dempwolff (1938) called “Nebenformen”, are reconstructions that are phonologically similar to one another (see Blust 1980a:25).
8 This reconstruction (PHN *ram+bun) is a disjunct of PAN *Ra+bun presented in section 1.1. Like many reconstructions, it is subject to scrutiny and re-evaluation, especially given Wolff’s (1974) objections against *r; it is here taken at face value.
watercourse between hills (*le(m)bak, *le(m)baq, *le(m)bęŋ), river (*suŋay), creek, ravine (*bawāŋ, open expanse of land or water), and primary forest (*tuan) as opposed to forest (*halás).

1.5 PROTO PHILIPPINE (PPH) TERMS

The following forms are mentioned here in the hopes of finding earlier etyma rather than as proposals for first encounters: tidal wave (*dālūyun), seashore (*bay+bay), rocky ground (*bakulud), water well (*bubún), waterfall (*běšáy), and rainbow (PSP *baluŋtu, PNP *buŋlun, which seems to have spiritual significance, see Blust 1983). It is also noteworthy that these languages replaced earlier words with the following: island (*pujuq), dew (*haʔ+muR), earthquake (*Rīduʔ), heat of the sun (*ma-qinit), windy (*dejes), forest (*kālāsan, *gūbat).

2. PROTO AUSTRONESIAN BOATING AND SEAFARING TERMINOLOGY

Certainly, with the diversity of the terrain just encountered, we might well wonder how they got to these places. The Austronesians are famous for their Oceanic voyages: spreading out from Formosa in the north to New Zealand in the south, Madagascar in the west and Easter Island in the east. Alas, on our present journey, there is not a lot to see at this time-depth. While it may be simply due to the lack of fuel (cognates in the upland Formosan languages), we may genuinely have discovered a prenautical stage in early Austronesian history. Only four terms which may relate to this sphere of activity are well-attested: move away, transfer (*SaliN), drift with current (*qānūd), turn, veer to the side (*liu-2),9 and possibly string, rope (*CalīS), which would obviously have been involved in activities other than navigation. Ferrell (1969) indicates that all Formosan groups are known to use some form of raft; although we cannot reconstruct a word at this level, it plays an important role in subsequent stages and will be discussed in sections 2.2 - 2.4. Paul Li (pers.comm.) believes that PMP *baŋka? canoe10 may be raised to this level on the basis of a cognate in Ketagalan (now extinct).

2.1 PHF

At this stage, there is one term relating specifically to dugout canoe; boat (*qabaŋ). One form represents a synonym for an earlier word, turn, veer to the side (*ilen). Another, noose, loop (*sliw) fits nicely with rope (above). Lastly, an unsuccessful venture into the sea might result in submerge (*te+neb), from which swim (*laŋuy, dbl: *daŋuy, *naŋuy) would be the only recourse.

2.2 PMP

Ocean travel was now not only possible, but well advanced. Everything necessary for inter-insular and trans-Pacific travel was available: canoe (*waŋkaŋ,10 *balūtu), load a

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9  This convention indicates full reduplication; using the number two after a hyphen (-2) is followed in the orthography of Malay and Indonesian.
10  PMP *bangka? (in section 2) and PMP *waŋkaŋ (in section 2.2) are etymologically distinct.
canoe, cargo (*lujan), go to sea (*pa-laHud), outrigger (*kátiR, *saRman), mast; post; pillar (*tiiqan), sail (*láyaR), canoe paddle, oar (*beRsay), paddle [v], row (*aluja, *paluja), punt, boat pole (*tékén), rudder; steer (*quiiñ), turn, veer to the side (*biliñ), bail, water-bailer (*limás), cross-seat in a boat (*señkar), rollers for beaching a canoe (*lañen), board, ride (*sakáy), join along the length, which also applied to a raft (*da+kit), putty, caulking substance (*+lit, *bu+lit), float (*a(m)puñ), sink, disappear under water (*télém), fathom [measure of depth] (*d2epáh), sheltered (as from wind or rain) (*d2uñ+d2uñ), and dive, plunge; drown (*ke+ñej).

2.3 PHN

Perhaps not surprisingly, after the successful innovations of Malayo-Polynesian times, there are not many new developments. We find alternate forms for raft (*Rá+kit) and float (*lén+táw), a term for bring up (a boat to shore) (*u-dahik), and a name for prow, bow (*zúluñ).

2.4 PPH

Again, for the most part, synonyms have appeared for artefacts or actions known much earlier: oar (*ga?ud), sink (*lúñud), and drown (*lémés). In the Philippines, yet another term for raft (*alud; PSP *arur) has arisen, probably attesting to its importance over the canoe (*baroto, *barangay,11 which forms are widespread, but with so many irregular reflexes that they must be taken with caution) as the basic means of navigation.

Similarly there are widespread forms in Western Austronesian languages, such as *padáw sail boat and *kápál ship (both from Tamil), which indicate that our Austronesian seafarers were open to innovation in design and lexicon.

3. PAN FISHING AND SEALIFE

Given the importance of and orientation to the sea, there is abundant evidence that the earliest Austronesian people drew their subsistence from it. The generic word for fish (*Si-ká?en) literally means used for eating, a morphological combination that persisted over the millennia (cf: PPH *i-seda? fish; eaten with the staple). They obtained such catches by means of derris root fish poison (*túbaH) and the fish hook (*kawíl). The earliest diet probably included: roe (*biRaS; cf: PHN *piRah), goatfish (*Ciqaw), adult mullet (*kaNasay), rayfish, stingray (*páRíS), shark (*qíSu), and freshwater eel (*tuNa). The cowrie shell (*tu(m)bak) was known and may have been used (e.g. as a horn or in the manufacture of fishhooks).

3.1 PHF

The PHF level adds but three terms to the above inventory: bait (*pa?én), which complements hook (above), the swamp or land crab (*kaRañ), and the turtle (*qanCipa).

11 The raised indicates a spurious (invalid) reconstruction.
3.2 PMP

As with the growth of their boating technology, so too was there a vast increase in methods of fishing. Two roots appear in forms replacing the original word for hook (*+bit, *+wit); there is another word for bait (*bañi). Braiding techniques (see section 13) allowed the introduction of the bamboo basket trap for fish (*bú+bu) and of a fish net (*saruk) and dragnet (*puket). The use of the weir (*qem-peñ) was accompanied by a fish drive; churn water (*kebur), undoubtedly a communal activity.

Equally impressive is the knowledge of numerous species of fish: barracuda, Sphyraena obtusata (*qalu), big-eyed scad (*qatulay), damsel fish (*mutu), dolphinfish (*lajih), grouper (*keRteñ), milkfish, Chanos chanos (*qawa?), perch (*kuraipu), pilotfish, Remora (*kemi, *gemi), pufferfish, porcupinefish (*taRutuñ), sailfish (*saku-layaR), Spanish mackerel (*tañiRi), squirrelfish (*taRaqan), stonefish (*nepuq), trevally, Caranx spp. (*bilu), tuna, bonito (*qatan), unicornfish (*qumay), wrasse, Cheilinus sp. (*mamin), young mullet, Neomyxus chaptali (*qaRuas), Scomberoides sp. (*daRi), marine-eel or fish sp. (*aRemañ), and an unidentified fish sp. (*turiñ). The term for gills (*hásañ; cf: PNP *hadañ) has persisted.


3.3 PHN

PHN peoples also refined fishing methods with the development of more kinds of fishnet (*Rambat), large fishnet (*salambaw), fish net or trap (*si?ud, *tuad2), fish trap (*bak(l)ad), fish pen (*ban(l)at), or they could catch fish/shrimp with the hands (*gama?).


3.4 OTHER DEVELOPMENTS

The speakers of Central Malayo-Polynesian encountered the hawksbill turtle (CMP *KeRaj), while Philippine speakers did well with roe (PPH *büji?, cf: PSP *bíhed), tiny shrimp (*amanáñ), various shrimp sp. (*pasáyan, *hí+pun), oyster (*talabá), and with land turtle sp. (*págüñ) or sea turtle (*pawikan).
4. PROTO AUSTRONESIAN PLANTS AND FLORA

Given the terrain and the tropical or near-tropical weather these people encountered in their homeland and new settlements, numerous plants could be found. Some of these proved very useful: bamboo sp. (*qauR), rattan (generic?) (*quy), thorn (*Cēnek, *dūRīH), tree, also the word for wood (*kāSiw). Some were edible or yielded fruit (*buāq) in a bunch, cluster (*puu), such as the mango, Mangifera indica (*Suai; PMP *wai), Cordia dichotoma or myxa or possibly the Anona reticulata (*qaNūNaŋ), Dracontomelum edule (*daq), or the fern Athyrium esculentum (*pahku). From the earliest times one could find the mucilaginous plant, Urena lobata (*puluC), nightshade, Solanum nigrum (*Sa muCf), the pandanus tree, Pandanus tectorius (*paqud2aN), the hibiscus, Gnetum gnemon (*baRu), a parasitic plant, Asplenium nidus (*lukuC), and sword grass, Imperata cylindrica (*Riaq).

4.1 PHF

PHF plant life included two more species of bamboo, Bambusa spinosa (*kawáyan (spiny) and *būluq (thin)). There was the palm, Caryota spp. (*qanibu.u), the shrub Smilax sp. (*baNaR, *banaw), the plant Diospyros discolor (*kamaya), and a pine tree, Pinus sp. (*saleŋ, yielding resin, which was sometimes given the same name). Fruit trees created a greater awareness of their attributes: ripe (*luum), tree trunk (*puu; PMP *puq), stump (of a tree) (*tuq), and another word for thorn (*suq).}

4.2 PMP


Secondly, more plants became known: a fern (*aResam), another fern, Cyatheae sp. (*puni), a lily, Dracaena or Cordyline spp. (*SiRi), the stinging nettle, Laportea (*latēŋ, *zalateŋ), the vine Flagellaria indica (*huAR), a grass sp? (*balij), and an unidentified plant (*lumbu). Some were useful: bamboo sp. (*teriŋ), Schizostachyum sp. (*tāmiŋ), Dendrocalamus (*bitūŋ, *pitūŋ), Bambusa vulgaris (?) (*periq); the fern, Lygodium circinnatum (*nīntuq), ramie, Boehmeria nivea (*rami; cf: PSP *qadamaŋ), Donax cinnamostis [used for making baskets] (*niniŋ), Grewia spp. (*qanilaw), Leea spp. (*mali), Millingtonia hortensis (*tanga), Pipturus argenteus (*ad2amay), rattan sp. (*naŋ). More edible fruits became accessible, such as Citrus sp. (*limaw, *muntay).

Morinda citrifolia (*ñeñu), Murraya paniculata (*kamuniñ), Nauclea orientalis (*bañkal), Palaquium spp. for timber (*ñatuq), Pisonia umbellifera (*qanuliñ), Pterocarpus indica (*náRa), Schleichera trijuga (*kasambi?), Schoutenia ovata (*kukun), Terminalia catappa (*talísay), Trema orientalis (*deRuñ), Vitex pubescens (*-pa(m)pa), tree sp. (*kanarum).

4.3 PHN

PHN flora were equally abundant and prolific: bunch, cluster (of fruit) (*búliR), leaf (*bulúñ), young shoot (*seli, *semi), undergrowth (*samun), young (of vegetation) (*bataq). More words appear for bamboo sp. (*pátuñ, *telañ), large sp., Dendrocalamus (*bètúñ), rattan (*apis), and mango, Mangifera indica (*pahuq). Other edible species are the jackfruit, Artocarpus (*naIka?, cf: PPH *ñaIka?, *laIka?) and a tuber, Dioscorea spp. (*gaDuñ) [cf: green].

Other species at this level include: sword grass Imperata cylindrica (*eRiq), grass (*qalamen), grass or rush sp. (*sedsed), the flowering plant, Crinum asiaticum (*båñuñ), the palm trees, Livistona rotundifolia (*qanahaw) and Pterospermum diversifolium (*bayuR), pandanus, Orania (*båñah), plant sp. with ceremonial uses (*taRabas), Cassia sp. (*asuntiñ), a plant used for dyestuff (*gamat), and unidentified plant spp. (*tanduk-2 and *lambayuñ); a timber tree, Dipterocarpus (*balaw), the trees Heritiera littoralis (*dùñun) and Indigofera (*tuRum), some as yet unidentified trees (*amaRa, *bañkirin, *kenduñ), a timber tree sp. (*Rihuq), and a vine from which poison is obtained (*ziteq).

4.4 DEVELOPMENTS AT OTHER LEVELS

In Southern Formosa we can find: orchid (PSF *SabaR) and camphor laurel (*dáakeS).

In the Philippines there is hemp (PPH *Rutay) and Manila hemp, Musa textilis (*abaká), the molave tree, Vitex parviflora (*ha(N)-bur?aw), the tree Dipterocarpus grandiflora (*apítuñ), another tree sp., Lagerstroemia (*banabá), the Ficus tree considered a spirit residence (*baliti?), and cogon grass, Imperata cylindrica (*kùRun).

In the Indonesian archipelago there is: fennell (*adas), a tree similar to breadfruit (*medán), and plants with stinging hairs (*amiñ). With regard to all of these reconstructions, we must be chary. Widespread distribution alone is not necessarily a factor of legitimacy. Some of the flora are probably later introductions since the words for them are recent borrowings: witness the almost universal distribution of peanut (< Mexican Spanish *maní?) in the Philippines.

5. PAN FARMING AND AGRICULTURE

Since there was such lush vegetation, some form of gathering, collecting (PAN *qalaq; PMP *alap) must have been practised. But even the early Austronesians were not simply gatherers – they were farmers; witness plant [v] (*CaNém) and grow [vintr]; plant sprout [n] (*Cú(m)buq). There was an awareness of undeveloped/fallow land, field (*CáIun), which they would then cut away, clear vegetation (*tebaS), in which a garden, cultivated field (*qumáH) would be established. Irrigation was provided: dig (out), canal, ditch (*kálih).
Food crops included sugarcane (*tebúS), taro, giant arum, Alocasia sp. (*bíRaq), and millet, foxtail sp. (*beCeq). There is no proof that the banana was among them, but every major AN subgroup has a word for some species of this fruit (cf: PFM *belbel, PWI *pisaŋ, PPH *sáRíŋ, PNP *báRat, and reconstructions below). Crop preparation included pounding (*báyuh, with mortar and pestle?) and winnowing (*taSép, *tapes).

5.1 PHF

Whether a matter of loss by the groups that ventured across the Pacific or of innovation within the next millennium, the following terms relating specifically to RICE AGRICULTURE are well-attested: rice (generic) (*Sumay, *Sêmay, *Hemay), seed (for sowing), seedling (*benSiq), rice plant, unhusked rice (*páyey), husked rice (*bêRas), rice straw, stubble (*ZaRámi), mortar (*lê+sug, *lu+súŋ), pestle (*qaSelu), thresh (*Ríék, *Rík), bran, chaff, rice-husk (*qeCá).

There are two more words for millet: Setaria italica (*záwah), millet sp. (e.g. sorghum) (*baCaj). Some forms relating specifically to agricultural activities have only a western distribution: dig in the earth (*kar+kar), pull out, pluck; weed (*guC+guC), and harvest (*qániH).

5.2 PMP

The Malayo-Polynesians continued this predilection for agriculture: earth, soil (*tanaq, *taneq), fertile (of soil) (*le+mek), fertile soil (*bu(R)+taq), mud (*pitak), wet (of soil) (*lemen), obstructed (of the flow of water) (*se+pet), heap up; cover with earth (*+bun, *tá+bun), hoe, digging stick (*suan, *sual), sow, scatter (seed) (*+buR, as in *ha(m)+buR, *ka(m)+buR), plant [v] (*múla), pull out, uproot (*a(m)+but, *i+but), and weed [v] (*babaw). Slash and burn agriculture may have appeared: set fire to, burn (*tutuq).

Malayo-Polynesian crops now included: banana (*punti), ginger (*laquya, *laqia), melon; cucumber (*timun), sago (*Rambia, *Rumbia, *sagùh), dry sago branches (*kumbal), taro, Colocasia sp. (*tales), turmeric, Curcuma zeodoaria (*kunij), and yam tuber Dioscorea alata (*qù(m)bi). Some of these food products were subject to grinding, milling (*gíliŋ).

Attributable to PMP are the coconut (*niúR) and coconut husk (*bunút); COCONUT FARMING per se must have developed by PHN times: scrape out meat from a coconut (*suq+suq), coconut cream/milk (*getaq, *ga+teq).

5.3 PHN

The Western Austronesians developed or improved upon existing farming methods: hack a passage through (*ben+tas), cut away underbrush (*ta+bas), cut off, prune; cut down (*teb+teb), dibble, sow (rice seedlings) (*ha+sék), sow, scatter, broadcast seed (*sá(m)+buR, *sa(m)+beR, *qa(m)+bud2), heap, pile (*bun+buñ), hoe, chop up soil (*bacuk). Irrigation was practised: block, obstruct (*ha(m)+ben), hollow bamboo tube (*buñ+buñ), mud (*bútá?, *+tek, *+cak), waterlogged (of ground) (*ba+cak).
Additional species of banana were discovered and cultivated: plantain (*sab'a), banana sp. (*balat), fell banana stalk (*teba?), Eggplant (*teruŋ), sesame, *Sesamum indicum (*lēghāh), and garlic (*bāwaŋ) were possibly introduced.

Rice agriculture rose in importance as the staple, yielding several alternate forms for pre-existing words (mortar (*e+sūŋ), pestle (*qahlu, *qalhu, *laqlu; PPH *haqlu), rice husk, bran, chaff (*qapa, *qepah, *padek), use of the millstone (*gilig-ān), and the process of separating the chaff from the grain (*siji) by using the winnowing basket (*nīRu).

6. PAN FAUNA – LAND ANIMALS AND THEIR CHARACTERISTICS

From the beginning, Austronesians knew of the dog (*ásu), which was tame, accustomed to man (*ma-Najam, *ma-dajam) and figured in hunting expeditions (see section 8). The pig (*bēRēk, *bābuy) could be found in a lair, den, nest (*Libu[?H] ). Creepy-crawly creatures may not have been differentiated as worm or snake (*qūlej, *ūlaR) and there was always the rat (*labaw; cf: PMP *balabaw; PHN *ba+baw; PPH *am+baw).

6.1 PHF

PHF times perhaps saw an increase in domestic animals (*qāyam), one of which was the pig (above), now not only hunted, but kept in a pigpen (*qabeŋ). They developed another word for tame, accustomed (*Lam+Lam), which was probably also applied to a carabao or ruminant (*Luāŋ, *qaNuāŋ), which was an animal with a horn (*uReŋ). In the wild, there was the scaly anteater, pangolin (*qāRem), a kind of squirrel (*buHut), male of ruminants, buck deer (*salajeŋ), which could be identified by its bark (of a deer) (*de+kiŋ), as well as a monkey sp. (*luCuŋ) which also had their identifying scream of monkeys, chattering (*keriq). Another term for snake (*buLay) was developed.

6.2 PMP

PMP speakers encountered deer (*Rus; cf: PHN *uRsa, PSP *usá), the civetcat (*mūsaŋ), the scream of a monkey (*keraq, *kusik), and some animals with a growl, snarl (*eJer) (cf: leopard (PSF *likuLāw) which belonged to a different period and place). The less pleasant encounters: fruit bat (*pānīki), more species of snake (*nipay), large snake sp. (*anipa), python (*sawāh) and earthworm (*bulati, *kalati).

6.3 PHN

PHN immigrants ran into a wild ruminant sp. (*tamadaw) and the tiger, animal that jumps (*qaRim?qaw), yet another species of monkey (*ayu; cf: PPH *bakes) and venomous snake (*depuŋ). They learned to domesticate the goat (*kamdiŋ, *kandiŋ, *kambiŋ) for food and the cat (*kutiŋ; also *pūsa?) as a pet.

6.4 OTHER DEVELOPMENTS

Central Malayo-Polynesian speakers were probably the first Austronesians to see the bandicoot, marsupial rat (*mansar) and cuscus (*kandoRa), as described in Blust (1982a).
PPH speakers seem to have a generic for animal (*háyup) – or has an earlier word been lost? Surely they were not the first to encounter the frog (*bak+bak, *p/al/aká?) or to care enough to name the puppy (*itu’)?

A term for horse (PWI *azar-an) was reconstructed by Dempwolff, which literally means be instructed, but this is surely a case of a local term for a recently introduced animal.

7. PAN BIRDS AND FOWL

PAN speakers were familiar with the hornbill (*kalaw), dove sp., pigeon (*báluj), wild dove (*púnay), and therefore with wing (*pánij) and egg (*télúR).

7.1 PHF

PHF speakers encountered the owl (*qekun); developed another word for wing (*pak+pak), and always marvelled at the ability of birds to fly (*layap; cf: PMP *Rebek; PHN *lē(m)pād₂, *layaŋ, *sayap).

7.2 PMP

PMP travellers probably domesticated the chicken, fowl (*manúk), since we find a word used to call chickens, etc. (*kur). These would, of course, lay eggs with their characteristic cackle (*kek+kek), then brood, sit on eggs (*e+kep).

Wherever they went they saw the ubiquitous crow (*kuak; cf: PHN *gak+gak; PPH *u+wák, *wak+wak). They met the omen dove (*-muken; PHN *-buken). Lexical replacement continued with words such as wing (*qelad₂), tail feather (*lawi).

7.3 PHN

PHN settlers got to know the quail, Turnix sp. (*páRuq, *puyuq), the swallow (*kalapini), the kingfisher (*bakaka), and some bird sp. and its cry (*tú?aw). They continued to raise chickens who would scratch up the ground (*kahiR) and brood (of a hen) (*qe(n)+dem). Kern discussed the heron (*baŋaw), but cognates are so far limited to Western Indonesian languages.

8. PAN HUNTING TERMINOLOGY

It is clear that the Austronesians used the bow (*búṣuR), bowstring (*d₂élés), and arrow; shoot an arrow (*panaq), which would pierce (*Ce+sek). At night they were able to see or move about with torch light; resin (*damaR; cf: PHF *sáleŋ resin; PMP *sulúq).

8.1 PHF

By PHF times a clearcut term for hunt, go hunting (*qaNúp) developed. In this as well as fishing they used a trap (*qaCeb or *taqén) with bait (*pa?én), whereby on land the prey
might be hanging caught (*káwiL). If one could not hit the mark (*kěNá?) with his weapon, in some cases, a lucky person might simply snatch, grab (*qáRaw) a catch.

8.2 PMP

The PMP people used the spear [n/v] (*saet) and set either bamboo trail pitfall spikes (*suja) or a snare (*zarinj). Bird lime (*pulut) also figured in this endeavour.

8.3 PHN

PHN speakers improved upon the spear (*baŋkaw), developing a bamboo spear (*suligi?), which made it easier to hit the target (*táma?). Trapping became more skillful when they developed a booby-trap (*balá(n)tiK) with a trigger, tension-set (*baquR) otherwise known as a bamboo spring trap (*baweR).

8.4 PPH

PPH settlers continued this prowess at hunting: seek, look for (*hánap), look for, hunt out (*tiñén), drive away, chase (*á+buR), and hunt (at night) (*pulaw).

9. PAN COOKING AND FOODSTUFFS

The Austronesians prepared their food in fire (*Sapúy), either using charcoal (*qújiŋ; cf: PHN *qá+jeŋ, *buriŋ, PPH *úsíŋ) or ashes (*qabúH; cf: PMP *abu). Some foods they ate raw, unripe (*ma-Hátáq). They could heat s.th. or warm oneself by fire (*d2a(IJ)+d2au). They might pound (prepared food) (*tuk+tuk) and then smoke fish or jerk meat (*CapaH), broil, roast in/over fire (*CuNuH), or cook by boiling (*na+suk, *Nasu), after which they would eat (*ká?en, *kaan; cf: PHN *amaq) by biting (*kat+kat, *kaRáC; cf: PMP *keteb, *ketep; nibbling *ket+ket, *kit+kit, PHN *kut+kut) or sucking (*sep+sep, *tip+tip) as appropriate.

They must also have known how to butcher (*bunúq) their pig (see section 6) or their quarry. Food would generally have to be consumed within the day or it would get rotten (*buRúk; cf: PMP *busuk, PNP *buyúk), although there may have been some attempt to preserve it for short periods: cork, stopper, plug (*sen+sen).12

They consumed meat, flesh (*Sesi, *Sisi) from their hunting or trapping, eggs (*qi-CélúR, *qatélúR; cf: PHF *Re+bun) and fruit from gathering, and the products of their farming. They seasoned with salt (*qasiRa), but too much was salty (*qasiN; cf: PPH *ma-ádat). Another flavour they recognised was sour (*qal+sem; cf: PHN *la+sem), probably experienced from unripe fruit.

12 The Oceanic reflexes of this form have to do with stopping up holes in canoes, so the assignment here may be in error for one to do with boating (see section 2).
9.1 PHF

PHF peoples learned that too much fire was not a good thing; it produced irritating smoke (*qēbēl; cf: PMP *qasūn). Although one could cook (*tānek) over or in a fire, they probably used embers (*bāRaH). Foodstuffs, which certainly included vegetables (*NaCēn) and some form of mushroom (*quHuŋ), could be placed in a cooking utensil (for scorching) (*qagelīC), possibly using some grease, fat (*SiMaR) for a better taste (*tāLam, *tāNam; cf: PMP *fiam+fiam). If there were leftovers (*teda?), these could be put into an earthenware jar (*balaua?; PPH *baua?) and preserved with salt (*timus). Another flavour now recognised was bitter (*paqfC), which may have caused them to spit (out) (*lupaS).

9.2 PMP

During PMP times, the enhancement of fire-making by using a firebrand (*aluten; cf: PHN *aliten) or tinder (*bāduk), led to the development of the trivet, three stone fireplace (*dalikan) and cooking pot (*kūdžen) with some kind of cover (*Raŋ+kub, *aŋ+kub) in which they could cook over a fire (*bāği) or heat food up (*la(n)ga?). Cooking (*Zakan) could be done either with fat, grease (*meņak; cf: PHN *miņak) or vegetable oil (*lāñah), otherwise food might get smoked, charred (*anūs, *anu?us).

Means of preparation included: spreading out in sun to dry (*bi+lāj, *bē+lāj), crush by pounding (*bēk+bēk), plucking (feathers), pulling out (entrails) (*but+but), peeling (*ke+las), cutting, slicing (*gērēt), cutting into pieces (*keļēg), or skewering for a barbeque (*tuduk; cf: PHN *te(n)+dūk).

Their diet included (among others treated above): preserved meat or fish (*kenas), insides: meat, soft-core, pith (*qunēj), and milk (*Ratas) to drink (*inum; cf: PHN *m-inūm). They may have learned to savour spicy hot (*ha-pējes) foods.

9.3 PHN

In the PHN kitchen, new words were used for cooking (*lu(n)tuq) and putting in or over a fire (*alub). They had to be wary of the danger of sparks, burning ashes in the wind (*lalatu). Methods included: slicing (*sāyad; cf: PPH *tājīp cut, pare) or dicing, cut fine (*qiRīs) done with a knife (*pisāw) and mixing foods together (*labuR, *lahūk) done with a spoon, ladle (*tīdūs). They also began to pickle (in brine) (*buduh). Soup, broth (*sā(m)bāw), porridge, rice gruel (*buR+buR), fat (*tabē?), and tripe (*batbat) were added to the menu. They would take provisions (*bālun) for forays away from home; such food might be put into a bamboo internode storage container (*tuŋ+tuŋ).

Their tastes became more discriminating, perhaps craving something sweet (*e+mīs; cf: PPH *ta?+mis) and rejecting anything tasteless (*qā(m)+baR) or tainted, rotten (*baRīw).

There is some doubt when and how newer cooking utensils may have been developed, since the following etyma show reflexes more characteristic of borrowing rather than inheritances: pot, frypan (*kāwāli?) or frypan; cooking pot (*pāriuk); cf: cauldron (*kāwaq < Mandarin kuo).
9.4 PPH DEVELOPMENTS

A special word appears to have developed for *viand*, food besides main starch (*sedá?, *sidá?; cf: PSF *damai). Other interesting words that may prove to have a more ancient pedigree include: *fetch water* (*sa(k)eDu, *sa?(e)geb), *take from the fire* (*há?un), *cool down* (of food) (*báhaw), which would be eaten the next day for *breakfast* (*pa máhaw). The *mung bean* (*balátuŋ) was added to the menu.

10. PAN INSECTS – EATERS BECOME THE EATEN, HUNTERS THE HUNTED!

Besides the fauna and birdlife they knew, many of which they raised, hunted, or ate, PAN speakers had to put up with: the *house fly* (*lá+ŋaw), *body or clothes louse* (*tuña), *head louse* (*kúCuH), *nit, louse egg* (*qá-liSáq; cf: PMP *leséq, *liséq), *cockroach* (*Hípes), *spider* (*láwaq), *centipede* (*qalúHípan, *qalípan), and *mite* (*káRaw). They may have had some taboo concerning the *butterfly* (*qá-li-baŋ+baŋ) (see Blust 1983).

10.1 PHF

By PHF times they knew the *cicada* (*Náli), *jungle leech* (*qáLi-mátek), *flea* (*qátímel), some *bug, noxious insect* (*bá+ŋaw), and suffered the stings of the *paddy leech* (*qáLi-meCaŋ; PHN *lintaq) in their ricefields.

10.2 PMP

PMP peoples had to endure the stings of the *mosquito* (*ňamúk, *lamúk), *gnat, sandfly* (*nek+nek), *ant with venomous bite* (*ha-me(n)ík), the continued irritation of the *fly* (*lálej), while the *termite* (*ňánay) ate away at their various constructions (see below).

10.3 PHN

PHN migrants met with more species of *ant* (*si(n)jem, *séjém, *lalatu), the *beetle* (*a(m)buœq), an *insect destructive to rice* (*za+ŋaw), the *spider* (*kánaw?), and the *weevil* (*buk+buk).

10.4 PPH

PPH residents had to deal with the *locust* (*dúdun) and a sufficiently irritating number of *nits* (*řít) and *mosquitoes* (*řaŘenek; PSP *tag(e)nek) to warrant the new words for them.

11. BEES AND APICULTURE

But even with these plagues from the insect world there was a bright side. At various times in their history, Austronesians learned of the *honeybee* (PMP *waŋi; cf: PFM *waNuH), bee, *Apis indica* (PMP *qániRuan), and the uses of *beeswax* (PMP *liľiŋ). Western Austronesians learned to *drive off bees, smoke bees away* (PHN *púhaR),
especially the bumblebee (PHN *-buyug; cf: PPH *-búyug) to get their honey (compare Dempewolf’s PWI *madu to Proto Indo-European *medhu-).

12. PAN BUILDING AND CONSTRUCTION

The very first structures included a house, family dwelling (*Rumaq) in which they would lay mats (*Sa paR) to sleep. Additionally they had developed a field house, hut, village granary (*le+paw), reflecting the importance of agriculture. To keep away vermin, they were probably elevated with entrance by a runged ladder (*tukad). People lived in hamlets; kin-based residential units (*kuan).

Methods of manufacture involved: hew, plane (with adze) (*taRáq), whet, sharpen (*Hásaq), cut, hack (*tek+tek), hammer, pound (*tuq+tuq), drive in (as post, nail or wedge) (*pa+cek), grate, rasp, scrape (*kud3+kud3; cf: PHF *ka+rut, PMP *ka+Rud). Materials used included: wood, stick (*kayuH) and numerous useful plants such as rattan and bamboo (see section 4). There was a continuous preoccupation with some form of adhesive, sticky substance (*dě+kéC, *di+teq; cf: PHF *Le+keC, *takid stick, adhere; PMP *ra+ket, *da(n)+ket).

12.1 PHF

By PHF times another field hut (roofed structure) (*sa+paw) had evolved. Additionally, some special form of door(way) (*qe+Neb) was built that had a corresponding verb, close (door) (*qi+Neb) and a fence (*qálad), possibly of split bamboo (*saq+saq), could keep animals out of the front yard; cleared area (*Ná+tad2).

Tools of this period included the hammer; hit with implement (*dak+dák) and some form of handle (for a tool) (*púlu) such as a machete (*malat) (see section 18).

12.2 PMP

The PMP emigrants may have formalised the design of the basic living unit. It had an erect, upright (*te+zek) housepost, pillar; pile; beam (*ha-d2ři, *turus; cf: PFM *qelud2) and a thatched roof (usually sago leaf) (*qatép) with a ridgepole/beam (*bubúg) and rafters (*kásaw). There was a hearth, stove (*d2apúR) with a storage shelf, rack above hearth (*páRa). Entry to these raised dwellings was via a notched log ladder (*haRedáñ). One could sleep on a hammock (*dúyan).

The settlement included a meeting house; public building (*baláy) and a bachelor’s quarters; shed (*kamáliR).

They utilised a shell or stone adze, axe (*kiRam, cf: PPH *wásay) with a handle (*paRada). (Chinese *puthaw iron axe is reasonably widespread, but clearly a loan.) Building methods now involved attaching, joining (*+pil; see also: PPH *tá+kip), joining along the length (*+kit), tying, clasping together (*kaput), rasping (*parud); and materials included the board, plank (*papan), stake, nail (*páku), glue, paste, plaster, caulk (*da+lit), and wedge (*kálañ). People slept using a wooden headrest, pillow (*qalun-an, *quluña).
12.3 PHN

The PHN dwelling appears to have had longish eaves (*surambir?) with a bamboo gutter or rain shield (*kulub) that gave additional protection (*lind2uŋ) from the elements. They could make partitions or rooms within the house by a wall, screen (*d2iŋ+d2iŋ), more structural integrity with a cross-beam (*atăŋ) and a floor beam (*kalasaR) on which flooring (*lan+tay; cf: PSP *daqtaR) was laid with interspersed floor slats (*salēR); they would cut-down/off (*tebci?) nipa reed, Nypa fruticans (*nipa) and other flora for both roofing and walls and fell, topple (*tebəŋ) trees or bamboo for larger supports. Means of chiselling (*paqēt) allowed a finer, smoother touch to the finished product. The saw (*lágądí?) was a later Indic innovation that made woodworking much easier, but did not figure in any early building techniques.

They made use of the hook (*ka+wit) and a wooden tray, table (*d2ulaŋ) within the house, a fence, enclosure (*pager) outside and possibly around their fields, and developed the suspension bridge (*ki+tey, *tey+tey) as a means of negotiating the rough terrain in which they lived (see section 1.4).

12.4 PPH

PPH residents made greater use of the space under the house (*síduŋ) and developed additional forms of shelter, hut (*há+bun; cf: PSP *lawiR).

13. EVIDENCE FOR BRAIDING

There is at present only the evidence given by the etymologies string, rope (*CalfS) (see section 2) and rattan (see section 4) for this technique in PAN.

Two etyma indicate the continuation of PHF braiding (or plant used, Donax cannaeformis) (*beN+beN) and mat (*Sikám).

However, there is ample support for this technique in PMP: braid, plait, weave mat (*anem, *ańam), plait, make with the hands (*batuR), wind around repeatedly (*+bej), mat (*tepiR, pos: *tipeR) and mat, covering (*hápın).

Again, by PHN times the skill was well known: braid, weave (mat) (*lája), plaitwork (*kalamata), braid (*ápi), and wind around, tie (*bed+bed). Products included: some types of basket (*bákul, *balulaŋ), a large basket (*bæŋkat), a small basket (*alát), another kind of small basket or a woven cover (*sükup), the winnowing basket (*bijáu, *níRu) (see sections 5 and 5.3), a bag of plaited palm leaves (*bayúʔuŋ), and a few kinds of mat (*a(m)bék, *tepa).

PPH speakers also made twine (*lúbid) and a small basket or its likely contents (*abú+but). Similarly Indonesians have an adjective for loosely woven (of a mat) (PWI *kazəq).
14. EVIDENCE FOR WEAVING

At the highest level, we find no universally-distributed etyma for weaving equipment. There is one reconstruction for PAN that may be indicative that the technique was known: blanket (*qules) with a disjunctive doublet\(^{13}\) upper garment (*Hules).

As for the reconstruction of any PMP weaving terminology, Blust (1977a:33, 35) points out that there is no linguistic evidence that the loom was part of the Proto Oceanic cultural equipment. So we are unable to establish on etymological grounds that this trade was practised.

At the PHF level, three terms indicate that weaving was a skill in the west: weave (cloth) (*tineʔun), loom (*tenunan), shuttle stick (*balija).

At least 4,000 years ago, PHN weavers were applying their trade: weave (*hábel), set up warp on a loom (*haʔnay), yarn; skein (*lábay), weft (*pakan), and batten of a loom (*li(n)ji). They kept such woven material (*ha(m)bél) in a bundle (of cloth) (*bantal). It is not clear when cotton was introduced (PHN? *kápes) because forms like *kápas < Prakrit kappasa and *kapuk appear to have spread by borrowing.

In the Philippines there are several etymologies for blanket (e.g. PPH *kúmut; PSP *kayab), which indicate that the skill continued.

15. AUSTRONESIAN SEWING

Woven items might need repair or enlargement, and sewing offered an opportunity to continue to utilise materials that would otherwise be discarded or put aside. For PAN, we see this process: needle (*ZáRum), thread a needle (*CuSuR), and patch (*Capel).

However, the word for sew is more limited (PHF *CaSfq), since another form appears to have competed with it during PMP times: sew, patch up (clothing) (*záqit). Reconstructions for thread (PHN *bénáŋ) and thread; needle and thread (PPH *tanud) are even more restricted. But there can be little doubt that sewing persisted from the earliest times.

16. AUSTRONESIAN CLOTHING, DRESS AND ADORNMENT

At the PAN level, we have mentioned a form that could have meant upper garment or possibly covering (*Hules), but evidence for this overlaps with forms meaning blanket (see section 14).

By PHF times, people dressed in either the skin of animal, hide, leather (*qaNiC, *kaLiC) or a skirt, sarong (*tápiS), and they may have had a bracelet (*gelán) for a decoration.

The PMP form for skirt, sarong (*tapis) is reconstructed with a different final consonant from its PHF counterpart. A word for fabric (*taluki) is also found, but could as much be the product of pounding bark or fibres as of weaving. Natives carried smallish belongings (such as the ingredients for a betel-chew mixture, see section 28) in a pouch (*kantuŋ) – this word has been extended to pocket in several daughter languages.

\(^{13}\) Disjunctive doublets or disjuncts (dsj) are reconstructions that share overlapping cognate sets, i.e. where given language evidence is proposed to support two or more reconstructions (see Blust 1980a:25f.).
Did PHN groups, who had expertise in weaving, step backwards with the loincloth, g-string (*bahaR), or is this form much older? They were aware of nudity, exposure of the body (*pu+kas). Against either sun or rain they utilised an umbrella (*páyun).

17. EVIDENCE FOR POTTERY PRODUCTION

In this domain, the linguistic evidence lags well behind the archeological records. Although pottery dating back several millenia is found throughout Austronesian territories, and in some areas has flourished (see Blust (1977a) for references to the Lapita tradition), at the PAN level, we only encounter a word for clay (*daRéq). We have already mentioned a cooking utensil (for scorching) (PHF *qæleiC), an earthenware jar (PHF *balaŋa?, PPH *baŋa) (see section 9.1), and PMP cooking pot (*kúdzen) (see section 9.2). PMP groups might have eaten from a cup, bowl (*maŋkuk).

18. EVIDENCE FOR METALLURGY

At the earliest stage, there is no evidence that the Austronesians were aware of or produced metal. However, PHF speakers appear to have a word for metal (*bæri) which may have been used in producing the machete, sword (*malat). Two forms refer to gold (-coloured) (*bulaŋan) and gold (coin) (*baLituk). They may, therefore, have known metal, although they may not have worked with it.

However, by the PMP level they probably knew how to temper metals (as when water and heat meet) (*sebu). A word for rust (*kaRaC bite) may confirm PHN knowledge of metals. By 4,000 years ago, Western-Austronesian groups were aware of blacksmithing (*sal+sal) (cf: *cæl+cæl hammer). They used the anvil (*landas-an) and probably worked iron (*besi), lead; tin (*timeRaŋ), gold (above), and possibly silver (*pírag). They may have produced wire (*kaWad), strands of which could be made into a ring (*ciŋ+ciŋ). They later learned of copper from Indic peoples (*tumbága). Anyone good at this trade (or the others discussed above) was referred to as a craftsman (*panday), but this is another Indic loan.

19. PAN BARTER, TRADE, COMMERCE AND NUMERACY

Early Austronesians did not simply barter (*bāliw; cf: PHF *sāliw), they had a specific form for buy (*bēli), and a derivation which meant sell (*pa(R)-bēli). These etyma do not necessarily imply the existence of a monetary unit, but based on their grammatical affixes they indicate DIRECTION OF TRADE: *-en towards actor (*beli-en) and *Si- away from actor (*Si-pa(R)-beli). With the relative bounty of their surroundings, they could choose, select (*pīliq) or ask for another of a different kind (*dúma).

Their ability to engage in commerce was enhanced by a decimally-based number system: one (*?c+sā, *i+sā, *a+sā, *ta+sā), one (unit of 10, 100) (*sā), two (*dʒuSā), three (*tēlū), four (*Së(m)pāt), five (*limā), six (*tēnēm), seven (*pitū), eight (*walū), nine (*siąw), ten (*pūluq), and the interrogative how many; how much? (*pjīH).
19.1 PHF

Within PHF times there were two words for count (*Hiáp, *bílán) and derivations of some of the numerals were apparently used verbally or existentially, that is, there are: three (*ta-télú), four (*Sa-Sépát), six (*a-eném), seven (*pa-pitú), and eight (*wa-walú). Items of trade could be many (*Sáduq) or all gone; to use up (all) (*?amin). One could, of course, borrow (*Sedám; cf: PHN *huzam) what one could not buy or barter.

19.2 PMP

PMP commerce now involved the number hundred (*Rátús) and another word for count (*qi(n)tu). One could buy one only (*ma-isá) or ask for some, some more (*ba-lu).

19.3 PHN

PHN counting reached the thousand mark (*Róbu; less likely *róbu). Some form of money must have been involved so that one could pay (*báyad2). If funds were lacking, not enough (*kúraq) one could ask for a discount, reduced price (*táwad2) or else run up a debt (*qútaq). If that was not paid as per the agreement, one might forfeit (*le(b)+leb) the goods. By these times pawning must have been introduced since we encounter a word for redeem (*tébus). In any event, it was not wise to trick, cheat (*dáya[?]) one’s clients.

Western Austronesians probably moved about considerably more to peddle (*láku?, *zazáh) their wares. Trade was probably still involved for items of equal, equivalent value (*bali). Besides products of their gardens, the forest or the sea, items that they weaved, braided, potted, smelted, or otherwise manufactured, their commerce may have involved ivory (*gádiq) or rock crystal (*kinán). If one tried to get another’s attention, he would touch lightly (*kubit) on the shoulder.

19.4 OTHER DEVELOPMENTS

Other developments included the innovation of a PPH word for nine (*siyám, *sa-siá), one unit of (10, 100, 1,000) (*ma-, *sa-sa-), and count which also meant think; consider (*ísip). In Malay and related languages the numeral for seven (PWI *tu(n)Zuq) was innovated, based on the word for point; index finger.

20. PAN KINSHIP AND SOCIAL RELATIONS

We are fortunate that all major terms for ascending and descending kinship patterns are available to us, and have been so since Blust (1979 and 1980b). Starting with two generations above EGO (*akú) they called grandfather (*aki; cf: PHN *laki) and grandmother (*ba?), there was also a VOCATIVE for grandparent (*bubu). The word for ancestor (*a(m)pu; cf: PMP *ta(m)pu) has also come to mean master or owner in some daughter languages (cf: PMP *tumpu).

The forms for the next generation are: father, uncle (FB) [reference] (*áma, *tama; [children’s VOC form] *mama; cf: PMP *amáy [VOC]), aunt (FZ), ‘female father’, also nursemaid (*aya), mother, aunt (MZ) [reference] (*ína, *tina; cf: PMP *na+na [children’s VOC form]; *ína [VOC]). Similar to Aboriginal Australia and other societies it appears that
mother’s side was the WIFE-GIVER: uncle (MB), parent-in-law (WF) (*ma(n)tuqáS; cf: PMP *túRaŋ).

For one’s own generation, we find that AGE mattered: older sibling (*kaka; cf: PMP *aka), younger sibling, which also came to mean kinsman (*u-Sáji; [VOC] *Sají; cf: PMP *ua(n)jí), and a term for twins of the same sex (*Sabíj). There may have been but one word for spouse, wife; husband, which also formed the verb to marry (*qásáwa), but some evidence indicates there may have been a distinguishing term for husband, male counterpart (*báNaS; cf: PHF *lakay, which also meant old man). The product of such a union was called child, offspring (*aNák; cf: PHF *LaLak).

20.1 PMP

By PMP times, they recognised a clan as 1/4 social subdivision (*suku) with a chief who was either a clan leader or priest (*dátu?), who was addressed with a title of respect (*puuq) and who had the power to convene an official gathering (*pened). Territorial rights were now established with a boundary, border (*supu).

One’s lineage was his bilateral kin (*Rumaq, the word for house). Great respect was shown for one’s ancestors (*andu), with terms for REFERENCE (*e(m)pu) vs ADDRESS (*a(m)puy). There was a reciprocal term for grandchild; grandparent (*ápu), with a specific derivation for granddaughter (*maka-empu).

Similarly, special words now existed for uncle (FB) (*ama-en, who would serve in his role if father was absent or dead) and for male sibling (*ñaRa), female sibling (*betaw), and affinal cousin (FZS, ZH) (*laya).

20.2 OTHER DEVELOPMENTS

Central Malayo-Polynesian peoples recognised the relationship of nephew (ZS) and child-in-law (DH) (CMP *dawa).

20.3 PHN

PHN speakers kept most of the inherited vocabulary, but used the VOCATIVE SYSTEM more extensively which involved word-final accent with the addition of a glottal stop [-ʔ], -h, or velar nasal [-ŋ], as in: mother! (*ina?, *inili, *inau), father! (*a ma?, *amili, *amau), grandparent! (*e(m)pu?) or the innovation of a term of address to males (*azuq). Other forms that appear to be innovations at this level include father (*bapa?) and grandfather (*ábü?).

The affinal system appears to have become more defined: sister-in-law (*hí-paR), brother-in-law (*bayaw), and sibling-in-law (*birás). Similarly, obligations upon the death of one’s kin were recognised: widow (*bálu), orphan (*flu; cf: PNP *ulila), and nephew, niece (*um-anak-en; lit. will become one’s child).

It was socially acceptable (if not obligatory) for a woman to have many children (*sanak). With a growing society it became difficult to know, recognise (*kilála) everybody, and when groups became too large to survive in a settlement, village area (*lebúq), it became necessary to part, separate, divide (*céray). One could drop by, pay a visit (*lawah) to relatives or
friends elsewhere. Eventually, such affiliated communities may have formed a *kingdom* (*hádi?)*, but this may have been relatively later in Western Austronesian history.

### 21. PAN CULTURAL TERMINOLOGY

Austronesian society was split into social halves by a *moiety*-system (*báliw*) and each person had a *name* (*nájan*). Akin to the distinction between inclusive *we* (*kitá*) vs exclusive (*kámí*), they appear to have recognised themselves as *person, human being* (*Cáu*; cf: PMP *táu-mataq, PSP *e+táw*), in contrast to an *alien person; outsider* (e.g. *Negrito*) (cf: PMP *qaRta*).

Within the group, one had to correspond to social codes according to a *shame* (*Siaq*) system. To break this one might get a *pat, light slap* (*pik*), but worst was *being ashamed, losing face* (*ma-Siaq*; cf: PSP *ma-heyaq*), a feeling of extreme emotional discomfort, such as if, for example, one committed a *sin, error, mistake* (*saláq*) such as *stealing* (*Cákaw*), which must have drawn strong disapproval. People developed bonds by *giving* (*beRáy*; cf: PPH *tudul, *dulut*), and one would hardly go anywhere without having a *companion* (*duma*) to *escort, convey* (*Sa(n)t6d2*) him or her.

#### 21.1 PHF

Blust (1977a: 33) discusses Formosan cognates of *write* (*súrat*; note disjunct *súRat, Tag súgam be pierced, wounded*). This etymon may be more appropriately attributed to etching or prickling associated with *tattooing* (*be+Cik*), which was practised by (or before) PHF times, cf: PAN *+rit scratch a line; PMP *tebék pierce, stab, *tusi draw – later extended to *writing*). Since there is no supporting evidence for any Austronesian syllabary (all those currently in use are of Indic or European origin; note also *basá read from Sanskrit), the products of such an art would probably have been pictographic or ideographic at best.

#### 21.2 PMP

Some PMP terms relevant to interpersonal relations include: *beckon, wave* (*qalep*), *sucking noise made to signal s.o.* (*misik*), *lie, deceive* (*baRiq, *bali*), and *beg, ask for* (*geni*). Approval fell upon the *lucky* (*ma-nuRuq*) and disapproval on anyone *stubborn, obstinate, unyielding* (*tegel, *te(n)ger*).

#### 21.3 PHN

PHN may have had a distinction between *custom, tradition* (*ugali?) and a *command, order* (*súRuq*) given by someone in authority. *Disagreement* (*tumaq*) was not encouraged, one was expected to *bow the head, nod* (*tuek*) and comply. If someone would *deny, refuse to accept or believe* (*uŋkir*), he was branded as *proud, haughty* (*a(m)buŋ*). Society did not appreciate anyone who would *show off; pretend* (*asih*).
22. RELIGIOUS BELIEF, TABOO, RITE AND RITUAL

PAN peoples believed strongly in the spirit (*qaNʃCu) world. By the PHF period a taboo (*paliSi; cf: PHN *mali?, PPN *tabu) system arose. Blust (1983) makes a case that the prefix class *qali-, *kali- marked forbidden (*laRaʃ) objects or phenomena.

Within PMP times, among those things feared or revered were an apparition, glimpse of s.t. (*ilap) and possibly even a shadow, reflection (*qaninuŋ). Some of the PHN peoples had a transvestite shaman (*asug) who interpreted any misfortune, catastrophe (*geraq). For an individual transgression there was the sign of a swollen belly for breaking the respect taboo (*busuŋ) and for the community, the severe punitive storm; hail storm (*baliw). There may have been a form for prayer other than the widespread loan *azi, such as ask pardon (*ampun).

In PPH communities they would blame, find fault with (*básul) a transgressor, who was expected to regret; take back (*báwi?) his action.

23. DEATH AND BURIAL

Based on current practices whereby a corpse is wrapped in a mat and put in a tree, cave (PMP *liaŋ, see section 1.3) or other high place until it decomposes, we can surmise that from the earliest times, what they would bury (PAN *CaNêm; cf: PHN *lêbêŋ) were the bones of the deceased. Archaeological evidence suggests that jar burial was the norm. There is a PHN etymology for body fluid from a corpse (*saRu) which would indicate a tradition where the corpse (*baŋkay) was kept long enough to decompose. It is not until PPH that we can reconstruct a word for coffin (*luŋũn).

24. PAN CLEANLINESS, GROOMING AND PERSONAL HYGIENE

Austronesian peoples had a definite preoccupation with personal hygiene, such as wash, rinse, bathe (*Se+řaw; cf: PHF *Naw+Naw, *raw+raw) to remove body dirt, dandruff (*dakîlI) or anything that was dirty (*ma-qilaŋ). PHF speakers removed particles of food stuck in teeth (*tígâS) and would wash, rinse (*SúRas) their clothes or utensils.

PMP people had another term for wash up (hands) (*bulú) which differed from wash (*buRiq). They would gargle; rinse the mouth (*+muR), remove earwax, cerumen (*tulîh, *tulu), and make use of various kinds of comb (*saRu, *saut, *suat; cf: PNP *sag/ay+say, PSP *sul+day). For tidiness around the house or yard they developed the broom (*sapu; cf: PSF *?aSik sweep). They would squeeze, wring out (*peRaq, *peRéš) wet clothing.

PHN groups had a fine tooth comb (*sujud), with which they would delouse, catch lice (*sik+sik; cf: PPH *hi(N)-kutu, *sukay), which they would then crush with the thumbnail (*tedes, *tedis). They would bathe (*diRuš; cf: PPH *diRu?) , after which they would wipe (*páhid; cf: PPH *púnas) themselves dry.
25. PAN SICKNESS, PATHOLOGY AND CURES

Among the ailments which were recognised in PAN were goiter (*biqel) and a wound; open sore (*ma-Nuka[H], *LukaH), which might develop pus (*nanaq). Certain conditions would cause one to shiver, tremble (*+ter; cf: PHF *keR+keR, PMP *+tir; PHN *gir+gir) or hiccough (*se(n)+du?).

25.1 PHF

Some infirmities identified by PHF speakers included a scaly skin disease (*kurap) which might itch (*ga+Cél; cf: PH PH *katél), or a blister; callus; corn (*buCu), which might smart, sting (*Sa-péjiq; cf: PMP *pējes). Physical defects noted were: blind (*buCá), lame (*pīLay), hunched over, bent with age (*be(ŋ)+kut; cf: PMP *buŋ+kut), and hump, hunchback (*bu(ŋ)kul). Those very ill would groan, moan (*daRilJ).

Not much in the form of remedies is reconstructable at these early stages apart from some form of massage, squeeze (*pesél; cf: PPH *hflut) and the use of a cane, staff, walking stick (*su(ŋ)kud; cf: PHN *tu(ŋ)ked, *tu(ŋ)kad).

25.2 PMP

PMP people would rather be healthy, feel fit (*se(ŋ)+ger) than be in pain; feel sick (*ma-sakf). Nevertheless, they suffered from a skin disease leaving white patches (*panaw), ringworm, herpes (*bu?ni), and cramp(s), stiffening of limbs (*+keŋ). If someone had a swelling; abscess (*baRéq) or boil, abscess (*bisul; cf: PHN *píRsah, PPH *peRsah), it would be squeezed (*pis-pis, *pes+pes) until the pus would squirt out (*pe(R)+cit; cf: PHN *le+sís); this often left a scar (*biras; cf: PHN *ulat, *kulad). Some physical afflictions noted were hoarse (*pa+Raw), cataract (*buléR; cf: PHN *buléR), deaf (*bēgél), and stammer, stutter (*gap+gap).

25.3 PHN

PHN groups had ear problems, deaf(ened) (*bēŋéR) or deaf; mute (*bisu; cf: PSP *e+máw mute), and some involving the eyes: blind in one eye (*pisék; cf: *+cek), and crosseyed (*zelín, *zulín). They realised that there were intestinal worms (*gelań) and that some diseases were contagious, spreading by contact (*za(ŋ)+kit). A cough (*îkej, *batük; cf: PSP *qebūh) could leave a person weak, tired; worn-out (*lumaq, *luyah). To these they had no remedy.

More importantly, for a bone fracture; crooked (of limbs) (*lepuq) they had a bandage, wrapping (*bārūt). For a cut, wound, scar (*palī?; cf: PPH *pî)(lat, PSP *pîla?), they would stanch, stop the flow of blood (*am+pet). For a lump, bump (*bukél), scab (*keRán, cf: PSP *keRán), or cracked, peeling (skin) (*kurisín) they had some form of medicine, poultice (*tambar; cf: PWI *ubat, PPH *udu[?]) PNP *ágas, PSP *bulúń). Alum (*tawas) may have been one natural product used medicinally.
25.4 PPH

Some PPH etymologies that probably have earlier attestations include: *groan in pain* (*aRúy*), *ouch!* (*a’dáy*), *pock marks; childhood illness* (*abas*), *growth in mouth of animal* (*hábas*), *swell(ing) of stomach due to gas* (*lebág*), *tropical ulcer* (*kuyapés*), *blinded by mote in eye* (*púliŋ*), and *choke on fishbone* (*běkěR*).

26. WARFARE

In case of an unforeseen attack, PAN speakers might *hide* (*-buNi, *táRuq*), but *bravery* (*RaqaNi; cf: PHN *baRáni*) was considered a high virtue. As we observed with regard to HUNTING (see section 8), however, they had the *bow and arrow* with which they could *kill* (*paCéy, *pa-ka-maCéy*) their *enemy* (PHF *busuR, cf: bow*). By PHF times, some form of *pointed weapon* (*bakál*) was also available. At least some battles were based on *revenge* (*báles*).

By the PMP period, they learned how to *use a blowpipe* (*le+put; cf: PHN *se(m)+put, *sumpit blowgun*); the dart was dipped into *poison* (*upas*). Additionally they had the *spear* (8.2) with a *goat hair decoration* (*bandañan*) and a form of *round shield* (*tamín*). In an all-out fight, when the supply of weapons was consumed or unavailable, they might *hit (with stick or club)* (*palu?*) or *throw (stones)* (*tuda?*).

The Malayo-Polynesians in their drive across vast new territories became the aggressors. They would *run after, pursue* (*búRaw; cf: PHN *úsíR*) those who fled, and might even *plunder, rob* (*raq+pas*) a defeated village. They could turn any *alien* into a *slave* (*qata*), who might later be *set free* (*lumbar*) under conditions of faithful servitude or the acquisition of personal wealth.

Such aggression continued into PHN times as evidenced by terms such as: *annex, subject* (*kabiR*), *provoke a fight* (*atis*), *surround, besiege* (*kepuŋ, *kepuq*), *go head-hunting* (*kayaw*), and *cruel* (*baŋis, dsj: *beŋis*). An enemy who did not *run (away)* (*laRiw*), might be *allowed (to live)* (*biháR* as a slave (*qudíp-en will live; cf: PNP *qadíp*en). Western Austronesians developed a *rectangular shield* (*kalásag*). They also must have made use of a knife or sword since they had a term for *hilt* (*dañan*). One curious correspondence set that Dempwolff (1938:25) marked as a loan is *xbechl gun*.

Western Austronesians developed a *rectangular shield* (*kalásag*). They also must have made use of a knife or sword since they had a term for *hilt* (*dananan*). One curious correspondence set that Dempwolff (1938:25) marked as a loan is *xbechl gun*, which again indicates that our method can only take us so far!

27. RECREATION AND PLAY

Several forms are found at the PHF level that imply *play* (*qayám*), *relax, spend time* (*pa-Súzey*), and *tickle* (*Lek+Lek*). This latter word is reflected by several disjuncts and doublets in PMP *tickle* (*gidik, *gitik, *kitik, *kidi, *giri*), probably reflecting some preoccupation with this as a source of amusement.

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14 This reconstruction (*qata*) is a doublet of *qaRta*, in section 21.
15 While this form may appear to be a doublet of *qayám domestic animal*, Philippine evidence suggests that it is distinguished by accent, i.e. *qayám to play*. 
Malayo-Polynesians would sing in unison (*saRup), and by – or probably well before – PHN times they would dance (*sáyaw) and whistle (*sihul). PHN pinch (*kedút) may indicate a less pleasant form of fun.

COCK FIGHTING was probably a late development. Although there is PMP natural cockspur (*tada) and cock, rooster (*laluń), it was probably not until the PHN period that the sport developed: cockfight (*sábuń), wrap-on cockspur for cockfight (*buláń), artificial cockspur (*tázi). Although these forms are widespread in the west, they often have reflexes associated with borrowing rather than inheritance, so the antiquity of this activity is far from established.

Although all peoples have SEXUAL TERMINOLOGY, it may be a matter of some interest how far we get in this obviously ancient activity. At the PAN level, reconstructions include: woman, female (*baHi, *ba-báHi; cf: PMP *b/ináHi, *ba-b(i)náHi, PSP *libun), male (*ma-RuqaNay; cf: PMP *láki, PHN *la-láki, PSP *e+séR), penis (*quítiN; cf: PHN *bú+tuq, PHF *lúsi?), and the Austronesian nose or sniff kiss (*Sajék). For PHF, we find: sleep with (*Súlij), erection (*qeCúR), sexual intercourse (*quíti), and pregnant (*maliqi) [related to taboo in section 22 ?]. Surprisingly, the earliest well-attested cognates for two words are PMP vagina (*púki?; cf: PHN *betfq; PNS *bediq) and embrace, hold (*d2akép). At the PHN level we have maiden, young girl (*d2-ad2aRa[h) and the previously-mentioned transvestite shaman (*asug). At the PSP level there is the affliction of having only one testicle (*abíl).

28. OPIATES: BETEL-CHEWING AND ALCOHOLIC BEVERAGES

An early and widespread form of social or personal entertainment included PAN betel nut (*buáq) and lime (for betel quid) (*qápuru). A disjunct of the latter occurs in PHF betel-chew, quid (*apuR). Continuing this tradition, there is PMP chew (but not intend to eat) (*mamáq; cf: PPH *ná?+ná?; PSP *mam(a)qen areca nut). At the PHN level we find betel-leaf (*Rawéd), betel pepper/leaf (*búyu?), betel nut case or box (*salapa?), and alum (*tawas). In the southern Philippines there is a form for prepared betel chew mixture (PSP *ti+lad).

Although we encounter PHF intoxicated, drunk (*ma-buSuk), this may have referred to the mild high obtained from betel. We certainly have no solid etymology for any form of alcoholic beverage until PHN ferment(ed) (*báhál), palm toddy/wine (*tubá?), and yeast; rice wine (*tápay). Widespread loanwords in this domain include the word for liquor (*árák) from Persian and opium (*apyan) from Hokien.

29. COLOUR TERMS

In their now classic monograph, Berlin and Kay (1969) outlined stages in cultural development based on the recognition of colours. PAN was clearly STAGE 1 with the recognition of black (*ma-qitém) and white (*ma-putiq). Variations on the former were noted as dark(ness) (*d2ém+d2ém, *+Dem, *lem). They also recognised mottled, spotted (*+Cík), probably related to the etymology for tattoo (see section 21.1). Although some languages use a cognate of raw, unripe (*ma-Hátaq) in the sense of green, it is not a true colour term (see section 9).
PHF is curious in that a word for green (*ma-ilem; cf: PSP *luhnaw) is reconstructed, suggesting STAGE 3, but no etymology is known for red from STAGE 2 earlier than PMP (*ma-iRaq, *purá[h]; cf: PSP *pulán). One form indicated a dark(ened) shade (*kuCem), while others continued specifications of black: shadow; shade(d) (*Lauŋ), dim, obscure, dark (*qu+Dem).

With the introduction of terms for red (above) and yellow (*ma-kunij), PMP could be characterised as STAGE 3. A competing form for white (*burak) came into use, along with several terms referring to pale, albino (*balar; *bulan, cf: moon; *bulay). Similarly darker hues were covered by forms such as dark, obscure; black (*ti+Dem) and dark (*d2e+d2em). Mixture of the two was designated as striped, streaked (*ba+rik).

No new colours appeared to be added at the PHN level. A doublet developed for black (*pitem), as well as forms for dark, black (*qi(n)+Dem, *ti+lem) and deep black, shiny black (*li(n)+tem). Alternate words were also used for red (*baRaq; *dē+Rāj also dry). Animal colours could be characterised as spotted, striped (*ba+laŋ), spotted, dappled (*pan+tek), or striped (*buraiŋ, cf: charcoal). A word was also developed to describe discoloured (as skin over a bruise) (*baŋ+baŋ).

30. PAN SMELLS AND AROMAS

If the Austronesian eye was not discerning in terms of colour, the daughter languages surely reflect an ancient and not-inconsiderable olfactory expertise, that is, PAN smell, sniff (*Sajék also kiss). A monosyllabic root is found in many etymologies designating smell of [x] (*qaŋ+), as in stink, stench, foul-smelling (*qaŋ+Sit) or several of the etyma below. Another monosyllabic root is used in some words for stench (*+tut). In contrast, they distinguished fragrant (*baŋSiS).

At the PHF level we encounter: stench (*qaŋ+suH), stench of urine (*qaŋ+seR), stench of putrid urine (*Lauŋ+sej), odour, stench (of fish/blood) (*Lauŋ+siʔ), stench (as of spoiled meat) (*qaŋ+Ru), and strong smell of fish (*qaŋ+RiS).

Within PMP times there was: smell, odour (*bāhuq; cf: PHN *bahu-an), smell vile (*maniaj), stench (*aŋ+(e)lem), and fetid, foul-smelling (*qaŋ+eliR, *qaŋ+ir). PHN added to this inventory words for having a putrid smell (*baŋhaw) and stench of sweaty armpits (*aŋ+sej, *aŋ+ceŋ).

31. CONCLUSION OF OUR VOYAGE

Our time trip has come to an end, but surely not our need for continued research and refinement. Several of the reconstructions taken at face value here are justifiably disputed by other scholars in this volume. There is still a greater task at hand for the many that survive the test of time and our method. Those natural phenomena (i.e. flora and fauna) that are correctly placed at either the Austronesian or Malayo-Polynesian level should allow us to confer with geologists, meteorologists, botanists, anthropologists, archaeologists and other such researchers as to their provenance in prehistoric times. In other words, if we can confidently assume that a corpus of reconstructions is valid, then this would be significant in isolating rather clearly the homeland for that level. For example, whichever area some six to eight thousand years ago had plants like bamboo, rattan, sugarcane, foxtail millet, Mangifera
indica, Dracontomelum edule, Athyrium esculentum, Urena lobata, Solanum nigrum, Pandanus tectorius, which also had a monsoon wind and was exposed to the sea with its tidal changes, and which teemed with goatfish, mullet, stingray, shark and freshwater eel, or birds such as the hornbill, dove, pigeon and wild dove – this should prove to be the Austronesian homeland. However, certain issues must be settled first, such as the appearance of words that seem to indicate an increase of geological and meteorological activity (section 1.2). Do these reflect a change in time or in zone, or are they retentions from PAN and therefore reflect the state of the original homeland? Whatever the answer, we linguists cannot reach it alone, but must rely on a broader range of expertise. The lure of etymological science, however enticing and fascinating, should not let us take another time trip with a *duma from among our fellow scientists.

ABBREVIATIONS

+ a monosyllabic root is posited
- a morpheme boundary is posited
/ an affixed form is usually found to occur
-2 full reduplication
ACD Blust (n.d.a)
AE1 Blust (1980a)
AE2 Blust (1983-84a)
AE3 Blust (1986)
AE4 Blust (1989a)
Bl Blust (see references)
CH Mathew Charles (personal communications, data and correspondence)
CH Blust (1976a)
CHN Chinese
CMP Central Malayo-Polynesian
Da Dahl (1976)
dbl doublet
DDO Blust (1981a)
Dp Dempwolff (1938)
dsj disjunct (see Blust 1970:112f., 1980a:25f.)
Dy Dyen (see references)
DyTs Dyen & Tsuchida (1986)
Fer Ferrell (1969)
Gon Gonda (1952)
HK Kern (1976)
Hm Blust (1984-85)
HM Dyen (1990)
HOK Hokien
Hs Blust (ed. 1981)
IND Indic
LVWL Blust (1982a)
McF McFarland (1977)
MHP Blust (1982b)
MSP Mexican Spanish
n note / footnote
Noth  Nothofer (1975)
NS   Blust (1974c)
PAA  Blust (1970)
PA1  Blust (1972c)
PA2  Blust (1972a)
PA3  Blust (1973)
PAN  Proto Austronesian
pc   personal communication
PD   Blust (1980c)
PER  Persian
PFM  Proto Formosan
PHF  Proto Hesperonesian-Formosan
PHN  Proto Hesperonesian (Western Austronesian)
PIN  Proto Indonesian
PKT  Prakrit
PMP  Proto Malayo-Polynesian
PNP  Proto Northern Philippine
PNS  Proto North Sarawak
PPH  Proto Philippine
PPN  Proto Polynesian
PSF  Proto South Formosan
PSP  Proto Southern Philippine
PWI  Proto West Formosan
Root Blust (1988a)
SKT  Sanskrit
Sn   Sneddon (1978)
SOC  Blust (1980b)
Tab  Blust (1981b)
Tam  Tamil
Tir  Blust (1992a)
Ts   Tsuchida (1976)
Tum  Blust (1992c)
Voc  Blust (1979)
VRR  Blust (1981d)
WIN  Western Indonesia
Wol  Wolff (1976)
Z=   Zorc (n.d. – fieldnotes, data sheets, file cards or computer files), but see McFarland (1977), Reid (1971), Yap (1977) for data
ZED  Zorc (1979a, 1979b)

APPENDIX

Notes on the alphabetical ordering of this glossary:

1. Letters in parentheses are ignored, but preconsonantal nasals that are unambiguously reconstructed are found in their respective order.
2. A morpheme division (-) is ignored (e.g. *tam-buRi is in position of «tambuRi»).
3. An infix (/ /) is ignored (e.g. *p/al/aka? is in position of «palaka»).
4. The monosyllabic root symbol (+) is ignored.
5. A glottal stop (?) is ignored.
6. A small letter precedes its capital counterpart (except that *H and *h, *L and *l are treated identically).
7. Accent is ignored (except that in the case of pairs stress on the penult precedes that on the ultima).
8. The order of nasals is: m, n, N, ñ, ñ.
9. In the case of homonyms, the earliest time-depth comes first.
10. Subscript numbers are ignored (e.g. *d and *d₂ are treated identically).

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Meaning</th>
<th>Time Period</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPH *abaká</td>
<td>Manila hemp, Musa textilis</td>
<td>4.4 FLORA</td>
<td>Z=</td>
</tr>
<tr>
<td>PPH *abas</td>
<td>pock marks; childhood illness</td>
<td>25.4 SICK</td>
<td>Bl-Tir,Z=</td>
</tr>
<tr>
<td>PHN *a(m)bék</td>
<td>mat</td>
<td>13. BRAID</td>
<td>Bl-AE1</td>
</tr>
<tr>
<td>PSP *abíl</td>
<td>having only one testicle</td>
<td>27. SEX</td>
<td>Z=</td>
</tr>
<tr>
<td>PHN *ábu?</td>
<td>grandfather</td>
<td>20.3 KIN</td>
<td>Z=</td>
</tr>
<tr>
<td>PPH *ábu+but</td>
<td>small basket or its contents</td>
<td>13. BRAID</td>
<td>Z=</td>
</tr>
<tr>
<td>PHN *a+búg</td>
<td>dust</td>
<td>1.3 NATR</td>
<td>Bl-PA3</td>
</tr>
<tr>
<td>PHN *a(m)búj</td>
<td>proud, haughty</td>
<td>21.3 CULT,EMOT</td>
<td>Bl-AE4</td>
</tr>
<tr>
<td>PHN *a(m)búqaj</td>
<td>beetle</td>
<td>10.3 INSECT</td>
<td>Bl-AE1</td>
</tr>
<tr>
<td>PPH *a+buR</td>
<td>drive away, chase</td>
<td>8.4 HUNT</td>
<td>Z=</td>
</tr>
<tr>
<td>PMP *abus</td>
<td>ashes</td>
<td>9. COOK</td>
<td>Bl-AE4</td>
</tr>
<tr>
<td>PMP *a(m)+but</td>
<td>weed, pluck, pull out</td>
<td>5.2 FARM</td>
<td>Bl-AE4</td>
</tr>
<tr>
<td>PMP *adájamay</td>
<td>plant, Pipturus argenteus</td>
<td>4.2 FLORA</td>
<td>Bl-AE4</td>
</tr>
<tr>
<td>PWI *adas</td>
<td>fennell</td>
<td>4.4 FLORA</td>
<td>Dp</td>
</tr>
<tr>
<td>PPH *ádat/má-</td>
<td>salty</td>
<td>9. FLAV</td>
<td>Z=</td>
</tr>
<tr>
<td>PPH *adáy</td>
<td>ouch!</td>
<td>25.4 SICK</td>
<td>Bl-Tir,Z=</td>
</tr>
<tr>
<td>PHF *a-enénm</td>
<td>six</td>
<td>19.1 NUM</td>
<td>Z=</td>
</tr>
<tr>
<td>PNP *ágas</td>
<td>medicine</td>
<td>25.3 SICK</td>
<td>Z=</td>
</tr>
<tr>
<td>PNP *ajamáŋ</td>
<td>shrimp - tiny</td>
<td>3.4 SEA,FISH</td>
<td>Z=</td>
</tr>
<tr>
<td>PMP *aka</td>
<td>sibling - older</td>
<td>20. KIN</td>
<td>Bl-Voc</td>
</tr>
<tr>
<td>PMP *akad₂</td>
<td>root</td>
<td>4.2 FLORA</td>
<td>Dp,Dy,Z=</td>
</tr>
<tr>
<td>PAN *aki</td>
<td>grandfather [cf: PHN *laki]</td>
<td>20. KIN</td>
<td>Bl-Voc,SOC,AE3</td>
</tr>
<tr>
<td>PAN *akú</td>
<td>I, 'EGO'</td>
<td>20. KIN,PRO</td>
<td>Dp,Ts,Z=</td>
</tr>
<tr>
<td>PMP *alap</td>
<td>gather, collect [cf: PAN *qalaq]</td>
<td>5. FARM,FOOD</td>
<td>Dp,Z=</td>
</tr>
<tr>
<td>PHN *alát</td>
<td>small basket</td>
<td>13. BRAID</td>
<td>Bl-PA3,Z=</td>
</tr>
<tr>
<td>PHN *alten</td>
<td>firebrand [dbl: aluten]</td>
<td>9.2 COOK,FIRE</td>
<td>Bl-AE3</td>
</tr>
<tr>
<td>PHN *alub</td>
<td>put in or over a fire</td>
<td>9.3 COOK,FIRE</td>
<td>Bl-AE4</td>
</tr>
<tr>
<td>PPH *alud</td>
<td>raft [Z = PSP *arur]</td>
<td>2.4 BOAT</td>
<td>Bl-Tir,Ch</td>
</tr>
<tr>
<td>PMP *alujá</td>
<td>paddle, row [dbl: *palujá]</td>
<td>2.2 BOAT</td>
<td>Bl-AE1</td>
</tr>
<tr>
<td>PHF *alur</td>
<td>flow(ing); channel</td>
<td>1.2 NATR</td>
<td>Dp,Dy,Noth,Z=</td>
</tr>
<tr>
<td>PMP *aluten</td>
<td>firebrand [dbl: al uten]</td>
<td>9.2 COOK,FIRE</td>
<td>Bl-AE3</td>
</tr>
<tr>
<td>PAN *ámá</td>
<td>father (F/FB) [reference]</td>
<td>20. KIN</td>
<td>Dp,Bl-Voc,Ts</td>
</tr>
<tr>
<td>PMP *ama-en</td>
<td>uncle (father's brother)</td>
<td>20.1 KIN</td>
<td>Z=</td>
</tr>
<tr>
<td>PHN *amá?</td>
<td>father [address]</td>
<td>20.3 KIN</td>
<td>Bl-Voc</td>
</tr>
<tr>
<td>PHN *amáH</td>
<td>father [address]</td>
<td>20.3 KIN</td>
<td>Bl-Voc,Ts</td>
</tr>
<tr>
<td>PHN *amáj</td>
<td>father [address]</td>
<td>20.3 KIN</td>
<td>Bl-Voc</td>
</tr>
<tr>
<td>PHN *amaq</td>
<td>eat</td>
<td>9. FOOD</td>
<td>Bl-AE4</td>
</tr>
<tr>
<td>PHN *amaRa</td>
<td>tree sp.</td>
<td>4.3 FLORA</td>
<td>Bl-AE1</td>
</tr>
<tr>
<td>PMP *amáy</td>
<td>father [address]</td>
<td>20. KIN</td>
<td>Bl-Voc</td>
</tr>
<tr>
<td>PPH *am+baw</td>
<td>rat</td>
<td>6. FAUNA</td>
<td>Bl-Tir</td>
</tr>
<tr>
<td>PHN *am+bun</td>
<td>dew; drizzle</td>
<td>1.4 NATR</td>
<td>Bl-AE2</td>
</tr>
<tr>
<td>PIN *amiXąt</td>
<td>plants with stinging hairs</td>
<td>4.4 FLORA</td>
<td>Bl-AE3#349n</td>
</tr>
<tr>
<td>PHF *amin</td>
<td>all (gone); to use up (all)</td>
<td>19.1 NUM</td>
<td>Bl-VRR,Z=</td>
</tr>
<tr>
<td>PHN? *am+pet</td>
<td>stanch, stop the flow of blood</td>
<td>25.3 SICK</td>
<td>Bl-AE2</td>
</tr>
<tr>
<td>PHN *ampun</td>
<td>ask pardon</td>
<td>22. RITE</td>
<td>Dp,Bl-Tir</td>
</tr>
</tbody>
</table>
PMP *ánay termite
PMP *anduŋ ancestors
PMP *anipa large snake sp.
PHN? *aru?us smoke, charred
PMP? *árus smoke, charred
PAN? *aNak child, offspring [alt: *u-aNak]
PMP *ar iam plait, weave, braid (mat)
PMP *ar iem plait, braid, weave mat
PHN? *an i+ćeñ stench of sweaty armpits
PHN *an i+ıkub cover [dbl: *Ra nga]
PMP *an i+(e)lem stench
PHN *a1)+(e)lem stench
PHN *apfd braid
PHN *apis rattan
PPH *apftuIJ tree, Dipterocarpus grandiflora
PMP *a RemaIJ marine eel or fish sp.
PMP *aResam fern
PHF *apuR betel-chew, quid [cf: *qapuR 'lime']
PMP *a(m)puy ancestor [address]
HOK Xapyan opium
PER Xárak liquor
PSP *arur raft [cf: PPH *alud]
PMP *aRemaIJ marine eel or fish sp.
PMP *aResam fern
PHH *aRúy groan in pain
PSF *aSik sweep; broom
PAN *e+sa one
PHN *e+sih show off; pretend
PHN *esu dog
PHN *esug transvestite shaman
PHN *asu ntiŋ plant, Cassia sp.
PHN *itaŋ crossbeam; block, dam
PHN *atis provoke a fight
PAN *a ya female father, aunt (FZ)
PHN *a yuŋ monkey
PWI *azar instruct(ion)
WIN Xazar-an horse [lit. be instructed]
WIN Xazi pray(er); praise
PHN *azuq term of address to males
PAN *ba-båHi woman, female
PMP *babaw weed [v]
PHN *ba+baw rat, mouse [dbl: *balabaw]
PMP *ba-b(in)åHi woman, female
PAN? *båbuy pig
PHN *ba+ćak muddy, waterlogged (of ground)
PHN *bacuk hoe, chop up soil
PHF *baCaj millet sp. (e.g. sorghum)
PMP *bådukuŋ tender, fungus on sugarpalm sp.
PHN *bagahak fish sp.
PHN *bahal ferment(ed)
PMP *bahåq flood
PHN? *båhåR loincloth, g-string
PPH *båhaw cool down (of food)
PAN *båHi woman, female
PMP *bahuq smell, odour

10.2 INSECT  Dp,Bl-Tir
20.1 KIN  BIAE4
6.2 FAUNA,REPT  BIAE3
9.2 COOK  Z=BIAE2
9.2 COOK  BIAE2
20. KIN  Ts,Z=
13. BRAID  BIA-Ch,Dy,Zed
13. BRAID  BIAE1
30. SMEL  BIAE3
9.3 FOOD,PROD  BIAE3
30. SMEL  BIAE4
30. SMEL  BIAE3
13. BRAID  BIAE3

4.3 FLORA  BIAE2
4.4. FLORA  Z=
20.1 KIN  Z=
20. KIN  BIVoC,SoC
22. BOAT  BIAE4
28. BETEL  BIAE3,Hm
20.1 KIN  BIVoC
28. OPIATE  Z=
6. FAUNA,HUNT  BIAE1,AE4
24. GROOM  Ts,Z=
19. NUM  BIAE1
21.3 CULT,EMOT  Z=
22. + 27. RITE  BIAE3
2.3 SEA,FISH  BIAE3
4.3 FLORA  BIAE3
25.4 SICK  Ch,Z=
24. GROOM  Ts
19. NUM  BIAE1
6.4 FAUNA  Dp,Dy
6.4 FAUNA  Dp,Hk
22. RITE  Dp
20.3 KIN  BIAE3
6.2 FAUNA  BIAE3
27. SEX  BI-VRR,DA,Z=
5.2 FARM  BI-CH,ZED
6. FAUNA  BIAE4
27. SEX  BI-VRR
5.3 FARM  BIAE4
5.3 FARM  BIAE3
5.1 FARM,FOOD  BIAE3,Hm
9.2 FLORA, F I R E  BIAE3,Z=
3.3. FISH  BIAE4
28. GROG  Z=
1.3 NATR  BI-PA1,Dp,Z=
16. CLOTH  BIAE4
9.4 FOOD  Z=
27. SEX  Dp,BIVRR,Dy,Ts
30. SMEL  Dp,Dy,Z=
<table>
<thead>
<tr>
<th>Phrase</th>
<th>Meaning</th>
<th>Category</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHN *bahuan</td>
<td>odour, stench</td>
<td>SMEL</td>
<td>BI-AE4</td>
</tr>
<tr>
<td>PAN *baʔi</td>
<td>grandmother</td>
<td>KIN</td>
<td>BI-SOC</td>
</tr>
<tr>
<td>PHN *bakaka</td>
<td>kingfisher</td>
<td>7.3 BIRD</td>
<td>BI-AE3</td>
</tr>
<tr>
<td>PHF *bakal</td>
<td>weapon – pointed</td>
<td>26. WAR</td>
<td>Dy-Ts</td>
</tr>
<tr>
<td>PPH *bak+bak</td>
<td>frog</td>
<td>6.4 FAUNA</td>
<td>Z=</td>
</tr>
<tr>
<td>PPH *bak+bak</td>
<td>monkey</td>
<td>6.3 FAUNA</td>
<td>Z=</td>
</tr>
<tr>
<td>PMP *bakhaw</td>
<td>mangrove tree, <em>Rhizophora</em></td>
<td>4.2 FLUNA</td>
<td>ZED</td>
</tr>
<tr>
<td>PHN *bak(h)lad</td>
<td>fish trap</td>
<td>3.3. FISH</td>
<td>BI-MHP</td>
</tr>
<tr>
<td>PHN *bakuku</td>
<td>fish: <em>Sparus berda</em></td>
<td>3.3. FISH</td>
<td>BI-AE1</td>
</tr>
<tr>
<td>PHN *bakul</td>
<td>basket type</td>
<td>13. BRAID</td>
<td>Dp,ZED</td>
</tr>
<tr>
<td>PPH *bakulud</td>
<td>rocky ground</td>
<td>1.5 GEOG</td>
<td>Z=</td>
</tr>
<tr>
<td>PHN *bakut</td>
<td>flowering plant, <em>Crinum asiaticum</em></td>
<td>4.3 FLUNA</td>
<td>Dp,Noth,ZED</td>
</tr>
<tr>
<td>PMP *balabaw</td>
<td>rat[*labaw]</td>
<td>6. FAUNA</td>
<td>BI-AE3#32</td>
</tr>
<tr>
<td>PHN *balanak</td>
<td>fish: mullet</td>
<td>3.3. FISH</td>
<td>Dp,Noth,Z=</td>
</tr>
<tr>
<td>PHN *ba-lan</td>
<td>spotted, striped</td>
<td>29. COLOUR</td>
<td>BI-AE4</td>
</tr>
<tr>
<td>PHF *balapa?</td>
<td>earthenware jar</td>
<td>9.1 + 17. POT</td>
<td>Dp,Dy,ZED</td>
</tr>
<tr>
<td>PMP *balar</td>
<td>pale, albino</td>
<td>29. COLOUR</td>
<td>BI-AE4</td>
</tr>
<tr>
<td>PHN *balat</td>
<td>banana sp. [*PNP *barat]</td>
<td>5.3 FARM,FLOUNA</td>
<td>BI-AE4</td>
</tr>
<tr>
<td>PHN *balan(t)ik</td>
<td>booby-trap</td>
<td>8.3 HUNT,WAR</td>
<td>BI-PAA,ZED</td>
</tr>
<tr>
<td>PPH *balat</td>
<td>mung bean</td>
<td>9.4 FOOD</td>
<td>Z=</td>
</tr>
<tr>
<td>PHN *balaw</td>
<td>timber tree, <em>Dipterocarpus</em></td>
<td>4.3 FLUNA</td>
<td>BI-AE1</td>
</tr>
<tr>
<td>PMP *balay</td>
<td>public building; meeting house</td>
<td>12.2 BLDG</td>
<td>BI-CH,Hs,Dy,Z</td>
</tr>
<tr>
<td>PHF *balas</td>
<td>repay, revenge</td>
<td>26. WAR</td>
<td>Ts,Z=</td>
</tr>
<tr>
<td>PMP *bali</td>
<td>lie, deceive [*baliq]</td>
<td>21.2 CULT</td>
<td>BI-AE4</td>
</tr>
<tr>
<td>PHN? *bali</td>
<td>equal, equivalent value</td>
<td>19.3 BART</td>
<td>BI-AE4</td>
</tr>
<tr>
<td>PHF *balija</td>
<td>shuttle stick</td>
<td>14. WEAV</td>
<td>Dp,BI-CH,ZED</td>
</tr>
<tr>
<td>PMP *baliji</td>
<td>grass (sp?)</td>
<td>4.2 FLUNA</td>
<td>BI-PAA</td>
</tr>
<tr>
<td>PPH *baliti?</td>
<td>tree, <em>Ficus</em> (spirit residence)</td>
<td>4.4. FLUNA</td>
<td>Z=</td>
</tr>
<tr>
<td>PHF *baLituk</td>
<td>gold (coin)</td>
<td>18. METAL</td>
<td>Ts,Z=</td>
</tr>
<tr>
<td>PAN *baliw</td>
<td>change, exchange; pay (back)</td>
<td>19. BART</td>
<td>BI-DDO,Z=</td>
</tr>
<tr>
<td>PAN *baliw</td>
<td>moiety</td>
<td>21. SOC</td>
<td>BI-PD</td>
</tr>
<tr>
<td>PHN *baliw</td>
<td>punitive storm; hail storm</td>
<td>22. RITE,CULT</td>
<td>BI-Tab</td>
</tr>
<tr>
<td>PMP *balu</td>
<td>some, some more</td>
<td>19.2 BART</td>
<td>BI-AE4</td>
</tr>
<tr>
<td>PHN *balu</td>
<td>widow</td>
<td>20.3 KIN,CULT</td>
<td>Dp,Z=</td>
</tr>
<tr>
<td>PAN *baliuj</td>
<td>dove sp., pigeon</td>
<td>7. BIRD</td>
<td>BI-AE1,Hm,Z=</td>
</tr>
<tr>
<td>PHN *balulat</td>
<td>basket type; skin, hide</td>
<td>13. BRAID</td>
<td>Dp,Z=</td>
</tr>
<tr>
<td>PHN *balun</td>
<td>provisions; roll up (together)</td>
<td>9.3 FOOD,WAR</td>
<td>Dp,Z=</td>
</tr>
<tr>
<td>PSP *baluqutu</td>
<td>rainbow</td>
<td>1.5 NATR</td>
<td>Z=</td>
</tr>
<tr>
<td>PMP *balut</td>
<td>canoe</td>
<td>2.2 BOAT</td>
<td>BI-AE3</td>
</tr>
<tr>
<td>PMP *banaʔR</td>
<td>radiance, ray of light</td>
<td>1.3 NATR</td>
<td>BI-AE1,Z=</td>
</tr>
<tr>
<td>PPH *banabá</td>
<td>tree sp., <em>Lagerstroemia</em></td>
<td>4.4. FLUNA</td>
<td>Z=</td>
</tr>
<tr>
<td>PMP *bandaʔan</td>
<td>goat hair decoration on a spear</td>
<td>26. WAR</td>
<td>BI-AE3</td>
</tr>
<tr>
<td>PHN *banjlat</td>
<td>fish pen</td>
<td>3.3. FISH</td>
<td>Z=,BI-MHP</td>
</tr>
<tr>
<td>PHN *banjlik</td>
<td>slime</td>
<td>1.4 NATR</td>
<td>BI-MHP,Z=</td>
</tr>
<tr>
<td>PHN *bantal</td>
<td>bundle (of cloth)</td>
<td>14. WEAV</td>
<td>BI-AE1</td>
</tr>
<tr>
<td>PMP *banua</td>
<td>inhabited territory/human ecosystem</td>
<td>1.3 GEOG</td>
<td>ZED,BI-Hs,Dy</td>
</tr>
<tr>
<td>PHF *baNaR</td>
<td>shrub, <em>Smilax</em> sp. [*dbl: *banaw]</td>
<td>4.1 FLUNA</td>
<td>BI-Hm,Ts</td>
</tr>
<tr>
<td>PAN *baNaS</td>
<td>husband, male counterpart</td>
<td>20. KIN,SEX</td>
<td>BI-VRR,Z=</td>
</tr>
<tr>
<td>PHF *baNaW</td>
<td>shrub, <em>Smilax</em> sp. [*dbl: *baNaR]</td>
<td>4.1 FLUNA</td>
<td>BI-AE1,Hm</td>
</tr>
<tr>
<td>PPH *bapʔa</td>
<td>earthenware jar or vessel</td>
<td>9.1 + 17. POT</td>
<td>Z=</td>
</tr>
<tr>
<td>PHN *báqah</td>
<td>pandanus, <em>Orania</em></td>
<td>4.3 FLUNA</td>
<td>BI-AE2,Z=</td>
</tr>
<tr>
<td>PHF *báq+gaw</td>
<td>bug, noxious insect</td>
<td>10.1 INSECT</td>
<td>BI-AE1</td>
</tr>
<tr>
<td>PWI *báqaw</td>
<td>heron</td>
<td>7.3 BIRD</td>
<td>HK</td>
</tr>
<tr>
<td>PHN *báq+báq</td>
<td>discoloured (as skin over a bruise)</td>
<td>29. COLOUR</td>
<td>BI-AE4</td>
</tr>
<tr>
<td>PHN *baʔbihaw</td>
<td>having a putrid smell</td>
<td>30. SMEL</td>
<td>BI-AE4</td>
</tr>
<tr>
<td>PMP *baʔji</td>
<td>cook over a fire</td>
<td>9.2 FOOD,COOK</td>
<td>BI-AE4</td>
</tr>
</tbody>
</table>
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PMP *baqi  
PHN *baquis  
PAN? *baqka?  
PMP *baqkal  
PHN *baqkat  
PHN *baqkaw  
PHN *baqkay  
PHN? *baqkirig  
PHN *baqkulis  
PAN *baqSis  
PHN? *baqa?  
PHN *baquR  
PHH? *banajay  
PHF? *bar[i]  
PMP *ba+rik  
PHN? *barut  
PHP? *barutu  
PHF *baRaH  
PHN *baRdni  
PHN *baRaq  
PMP *ba+Rat  
PMP *baRÈq  
PMP *baRiq  
PHF *baRiuS  
PHN? *baRiw  
PAN *baRu  
SKT *basah[hs]  
PHH? *basul  
PHN? *bataq  
PHN *bat[hot]  
PHN *batuH  
PHN *batük  
PMP *batuR  
PHN *enawd  
PHN? *enwaq  
PHN *enawaR  
PPH *baRiuS  
PPH *baRiu  
PHN *baRiq  
PHN *baRat  
PMP *baRiq  
PMP *baReq  
PMP *baRiq  
PHF *baRuS  
PAN *beCen  
PHF *beCik  
PHN *bed+bed  
PHN? *bedil  
PNS *bediq  
PMP *bej  
PMP *bek  
PMP *be+[g]+kar  
PMP *be+[g]+kAR  
PMP *be+bek  
PAN? *be+[g]+kut  
PMP *be+laj  

3.2 FISH,HUNT  
26. WAR  
2. BOAT  
4.2 FLORA  
13. BRAID  
8.3 HUNT,WAR  
23. DEATH  
4.3 FLORA  
3.3. FISH  
30. SMEL  
203. KIN  
8.3 HUNT  
2.4 BOAT  
18. METAL  
29. COLOUR  
25.3 SICK  
2.4 BOAT  
9.1 COOK  
26. WAR  
29. COLOUR  
5. FARM,FLORA  
25.2 SICK  
21.2 CULT  
1.2 NATR  
9.3 FOOD,FLAV  
4. FLORA  
21.1 CULT  
22. RITE,CULT  
19.3 BART  
20.3 KIN  
1.5 GEOG  
5. FARM,RICE  
4.3 FLORA  
13. BRAID  
12. NATR  
5. FARM,FOOD  
21.1 CULT  
13. BRAID  
26. WAR  
27. SEX  
13. BRAID  
1.3 NATR  
4.2 FLORA  
4.2 FLORA  
9.2 FOOD,MOVE  
25.4 SICK  
25.1 SICK  
9.2 FOOD,PROD  

Bl-CH,AE4,ZED  
Bl-CH,AE4  
HK,Li-pc,Bl-CH,Dy  
Bl-CH,AE4,Hm  
Bl-CH,AE1,ZED  
Bl-CH,AE2,ZED  
Dp,Noth,Z=  
Bl-AE3,AE4  
Bl-AE4  
Bl-AE4  
Bl-AE4  
Ch,BI-AE4  
Z=  
Bl-CH,ZED  
Bl-AE3  
Bl-AE2  
Z=  
Dp,Noth,Ts  
Dp,Noth,Z=  
Bl-AE4  
Bl-AE4  
Dp,Noth,Ts  
BI-CH4  
BI-CH,E  
BI-CH,E  
BI-CH,E  
BI-CH,E  
BI-CH,E  
BI-CH,E  
BI-CH,E  
BI-CH,E  
BI-CH4  
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BI-CH4 

NATR  
NPh  
CPh  
NPh  
NPh  
NPh  
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NPh  
NPh  

PAN *bélíí buy 19. BART Dp,Dy,ZED
PHN *bélíí buy thread 15. SEW Dp,ZED
PHF *benaqi sand [cf: *qenay] 1.2 NATR BI-VRR
PHF *bengi seed (for sowing), seedling 5.1 FARM,RICE Dp,Noth,ZED
PHN *bent+tas hack a passage through 5.3 FARM BI-AE3
PHF *bent+beN braid 13. BRAID Da,Z=
PHF *bent+beN Donax cannaeformis [for braiding] 13. BRAID Da,Z=
PMP *bègèl deaf 25.2 SICK Dp,Dy,Z=
PHN *bègèR deaf(ened) 25.3 SICK BI-AE2,Z=
PHN *bégéR cruel [Dsj: *bauis] 26. WAR Dp,Noth
PAN *beRaq taro, giant arum, Alocasia sp. 5. FARM,FLORA BI-CH,Hm,Dp,ZED
PAN *biRaS roe, fish eggs 3. FISH BI-AE3
PHN? *bisa deaf; mute 25.3 SICK BI-PA3
PMP *bisaq foam, bubbles [cf: *puCaq] 3.2 FISH Dp,BI-CH,ZED
PHN *bisaq foam, bubbles [cf: *puCaq] 3.2 FISH Dp,BI-CH,ZED
PHF *bitesu boil, abscess 3.2 FISH Dp,BI-CH,ZED
PMP *bit hook 3.2 FISH BI-Root
PMP *bjuR bamboo, Dendrocalamus [dbl: *pituIJ] 4.2 FLORA BI-Hm
PAN *bi(n)tuqen star 1.1 NATR Dp,BI-PAI,Ch
PAN *bu dust 1.1 NATR BI-Root
PAN *buq betel nut 28. BETEL Ts,BI-CH,ZED
PAN *buq fruit 4. FLORA TS,Bl-CH,ZED
PAN *bubu grandparent [vocative] 20. KIN BI-SOC
PMP *bubu=bu bamboo basket fish trap 3.2 FISH Dp,BI-CH,ZED
PPH *bubúñ water well 1.5 GEOG Z=
PMP *bubúñ ridge of roof, ridgepole beam 1.2 BLDG Dp,BI-CH,ZED
PHF *bucÁ blind 25.1 SICK Dp,Noth,Da,Z=
PHF *bucU blister; callus; corn 25.1 SICK BI-AE4
PMP *budaq foam, bubbles [dsj: *bujaq] 4.2 FLORA BI-AE3
PHN *budu[h] pickle (in brine) 9.3 FOOD BI-AE4
PHF *buhUt squirrel, rodent sp. 6.1 FAUNA Ts,BI-CH,ZED
PAN *bujía foam, bubbles [cf: *puCaq] 1.1 NATR Dp,BI-PA1,Ts
PHF *bujía foam, bubbles [cf: *puCaq] 3.4 FISH Z=,Ch
PAN *buk decay, crumble; powder 1.3 NATR Z=,Bl-Root
PHN *buk+buk weevil 10.3 INSECT Dp,Dy,BI-PA1
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PHN? *bu(n)kel
lump, bump

PHN *bukien/-
omen dove [dbl: *muken]

PAN *bukij
hill, mound

PHF *butikul
hump, hunchback

PMP *bulan
albino [dbl: *bulay; cf: ‘moon’]

PHN *bulan
moon

PMP *bulak
clatter of the eye

PMP *bulay
albino [dbl: *bulan]

PHN *bulan
moon

PMP *bulan
wrap-on cockspur for cockfight

PMP *bulan
bunch, cluster (of fruit)

PMP *bulan
putty, caulking substance

PMP *bulan
mountain

PMP *bulan
leaf

PSP *bulan
medicine

PHF *bulan
bamboo, *Bambusa* sp.

PMP *tan
heap up, cover with earth

PHN *tan
heap, pile

PMP *tunduk
mountain peak, elevated ground

PMP *bu
ringworm, herpes

PAN *bun
kill, stab, butcher

PHN *bun
fish sp.

PMP *bunut
coconut husk

PAN *bun
hide

PMP *bun
red; fire; [SPh] betel-nut

PHN *bun
hollow bamboo tube

PMP *bun
bent with age

PMP *bun
rainbow

PMP *bun
crocodile [Bl: non-marine]

PHN *burak
white

PHN *burin
charcoal

PHN *burin
striped (animal) [cf: charcoal]

PMP *bur
strew, sow, scatter (seed)

PMP *bur
pursue, chase, run after

PHN *bur
porridge, rice gruel

PMP *riq
wash

PAN *Buruk
swollen belly – respect taboo

PAN *busuk
swollen belly

PHN *busuk
bow

PHF *busuk / m-
drunk

PMP? *burstaq
mud, fertile soil

PHN *buta
mud

PMP *but
pluck, pull out; extract

PHN *buti
fish; pufferfish

PMP *butun
tree sp., *Barringtonia* spp.

PHN *butu
penis

PHN? *buyu
betel pepper/leaf

PPH *buyug/
bumblebee

25.3 SICK

1.1 NATR

29. COLOUR

27. COCK, CULT

25.2 SICK

6.2 FAUNA

25.3 SICK

4.3 FLORA

25.2 SICK

6.1 NATR

29. COLOUR

25.2 SICK

25.3 SICK

4.3 FLORA

25.1 SICK

25.3 SICK

29. COLOUR

29. COLOUR

25.1 SICK

9. FOOD,HUNT

3.3. FISH

25.3 SICK

5.2 FARM

26. WAR

3.2 SEA, FISH

5.3 FARM

9.3 FOOD

24. GROOM

9. FOOD, FLAV

4.2 FLORA

5.3 FARM, TOOL

28. GROG

5.2 FARM

5.3 FARM

11. BEE

28. BETEL

27. SEX

4.2 FLORA

9. FOOD, FLAV

1.5 NATR

3.2 REPT, SEA

9.1 PROD, FIRE

5.2 FARM

26. WAR

9. FOOD, FLAV

24. GROOM

9. FOOD, FLAV

11. BEE

22. RITE, SICK

8. HUNT, WAR

26. WAR

28. GROG

5.3 FARM

9.2 COOK

3.3. FISH

4.2 FLORA

11. BEE

28. BETEL

27. SEX

5.2 FARM

11. BEE

6.2 FAUNA

6.1 NATR

29. COLOUR

25.2 SICK

18. METAL

6.1 FAUNA, REPT

29. COLOUR

3.2 SEA

4.3 FLORA, MEAS

2.2 BOAT

25.1 SICK

1.3 NATR

43. FLORA

25.3 SICK

5.2 FARM

26. WAR

3.2 SEA, FISH

4.2 FLORA

25.1 SICK

9. FOOD, HUNT

9. FOOD, FLAV

24. GROOM

5.2 FARM

5.3 FARM

9. FOOD, FLAV

9. FOOD, FLAV

28. GROG

5.2 FARM

5.3 FARM

24. GROOM

9. FOOD, FLAV

4.2 FLORA

25.3 SICK

4.1 FLORA

5.2 FARM

4.2 FLORA

5.3 FARM

25.2 SICK

29. COLOUR

9.1 PROD, FIRE

25.2 SICK

4.2 FLORA

4.2 FLORA

25.2 SICK

4.2 FLORA

25.1 SICK

25.1 SICK

4.2 FLORA

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4.2 FLORA
9. FOOD, FLAV  Z=
11. BEE  Bl-AE3
5.3 FARM  Bl-Root
18. METAL  Dp
25.3 SICK  Bl-Root
20.3 KIN, SOC  Bl-AE3
18. METAL  ZED
21. SOC  Dp, Ts

21. CULT  Dp, Z=
2. + 13. BOAT  Bl-CH, Dy, Ts
5. FARM  Bl-CH, ZED
5. FARM  Ts, Bl-CH, ZED
23. DEATH  Ts, Bl-CH, ZED
9. FOOD  Ts, Bl-CH, ZED
15. SEW  Bl-AE3
1.2 GEOG, LOC  Bl-AE4, Z=
15. SEW  Dp, Dy, Ts, ZED
4. FLORA  Bl-AE3
8. HUNT  Bl-AE4
29. COLOUR  Bl-Root
3. FISH  Ts, Bl-AE1, Hm, Z=
5. FARM  Ts, Bl-AE3, ZED
10. INSECT  Dp, Ts
9. FOOD  Dp, Ts
15. SEW  Ts
9. FOOD, CULT  Dp, Dy, Ts
1.3 NATR  Dp, Bl-PA1, Dy
27. SEX  Dp, Dy
4.2 FLORA  Dp, Dy
6. FAUNA, FARM  Bl-AE3
12.1 BLDG, PROD  Dp, Da
27. SEX  Dp, Dy, Bl-PA1
3. FAUNA, FARM  Dp, Bl-Hm
12. BLDG, PROD  Bl-AE3
24. GROOM  Dp, Ts, Z=
2.2 BOAT, BLDG  Bl-AE3
4.2 FLORA  Bl-AE3, AE4
4.2 FLORA  Bl-AE4
9.2 FOOD, COOK  Ch, Bl-AE3
4.2 FLORA  Ch, Z=
12.2 BLDG, PROD  Bl-AE3
1.5 NATR  Z=
9.4 FOOD  Ts
8. HUNT  Dy, Ts, Z=
1.1 NATR  Dp, Ts, Bl-Hm
1.1 NATR  Dp, Ts, ZED
26. WAR  Bl-AE4
4.2 FLORA  Bl-AE3
2.1 BOAT, MOVE  Bl-AE4
4.2 FLORA  Dp, Bl-PA1, Hm
12.2 BLDG, PROD  Dp, Bl-CH, Dy
4.2 FLORA  Dp, Dy
12.3 BLDG  Z=
4. FLORA  Bl-AE3, Hm
1.3 GEOG  Bl-Hm
17. POT  Ts, Bl-AE1, Z=
PMP *daRi fish, *Scomberoides sp.
PMP *daRig groan, moan
PMP *d2+taR plain, level ground
PMP *d2+u chief, clan leader or priest
CMP *dawa child-in-law (DH), nephew (ZS)
PHN? *davya[?] towards the interior [cf: *laHud]
PHN? *dative trick, cheat
PMP *debu dust
PMP? *d2e+d2ap tree, *Erythrina indica
PMP *d2e+d2em dark
PPH *dejes windy [cf: PMP *deRes]
PHN *de+RliI) wall, screen
PMP *deRuI) tree, *Trema orientalis
PMP *de+diI) / ma- cold (of weather)
PHN *di+RliI) wall, screen
PMP *di+ma another of a different kind
PMP *duma companion, mate
PMP *d2uI)+d2uI) sheltered (as from wind or rain)
PHN *d2yLuaI) wooden tray, table
PHN *d2yRu Hammock
PMP *e+kep brood, sit on eggs
PSP *e+maw deaf, dumb, mute
PHN *e+mís sweet
PAN *e+ném six
PMP *e+gér growl, snarl
PMP *e(m)pu ancestor [reference; cf: *apu]
PHN *e(m)pu? ancestor, grandparent [address]
PHN *eRiq sword grass, *Imperata cylindrica
PAN *e+tsa one
PSP *e+seR man, male
PHS *e+súŋ mortal
PSP *e+taw person
PHF *ga+Cel itch
PHN? *gádiŋ ivory
PHN *gaDuŋ tuber, *Dioscorea spp. [cf: 'green']
PHN *gak+gak crow

3.2 FISH Bl-AE4
25.1 SICK Ts,Bl-AE4
1.3 GEOG Dp,Dy,Z=
20.1 KIN,SOC Z=,Bl-CH,SOC
20.2 KIN Bl-SOC
1.1 NATR,LOC Ts,Bl-Hm
19.3 BART Dp,Dy,Z=
1.3 NATR Bl-VRR,Root
4.2 FLORA Bl-Hm
29. COLOUR Dp,Dy,Da
1.5 NATR Z=
12. BLDG,PROD Ts,Bl-Root
6.1 FAUNA Bl-AE3,Hm
8. HUNT,WAR Ts,Bl-AE1
29. COLOUR Bl-Root
29. COLOUR Ts
2.2 BOAT,MEAS Bl-Hm,ZED
6.3 FAUNA,REPT Bl-AE4
29. COLOUR Bl-AE2
1.3 NATR Bl-AE1,Z=
4.2 FLORA Bl-AE4
1.3 NATR Dp,BI-PAA
12.3 BLDG,Dp,Noth,BI-PAA2
21. CULT Ts,Z=
21. CULT Dp,Noth,BI-PAA
2.2 BOAT Bl-AE3
4.3 FLORA Bl-Hm
1.4 NATR Bl-AE3
4. FLORA Dp,Dy,Z=
19. NUM Dp,Dy,Ts
12.2 BLDG,Dp,Z=
3.2 SEA Bl-H,Dp
7.2 BIRD Bl-AE4
25.3 SICK Z=
9.3 FLAV Bl-AE2
19. NUM Dp,Ts
6.2 FAUNA Bl-AE4
20.1 KIN Z=,Bl-Voc,SOC
20.3 KIN Z=,Bl-Voc
4.3 FLORA Bl-AE3
19. NUM Dp,Ts,ZED
27. SEX Z=
5.3 FARM,RICE Bl-AE1
21. SOC Z=
19.3 BART Dp
PHN *gamaʔ catch fish/shrimp with the hands 3.3. FISH
PHN *gamat plant used for dyestuff 4.3. FLORA
PMP *gap+gap stammer, stutter 25.2. SICK
PHN *ga+téq coconut cream/milk [cf: *getaq] 5.2. COCO,FOOD
PPH *ga'ud oar 2.4 BOAT
PMP *gaway octopus tentacles / arms 3.2. FISHBODY
PHN *gellaŋ worm - intestinal 25.3. SICK
PMP *gawaŋ octopus tentacles / arms 3.2. FISHBODY
PHN *gelau bracelet 16. CLOTH
PMP *ge+lap lightning that strikes s.t. 1.3 NATR
PMP *gemi pilotfish, Remora [dsj: *kemi] 3.2 FISH
PHN *geraq misfortune, catastrophe 22. RITE, CULT
PMP *geret cut, slice 9.2 FOOD
PHN *getaq coconut cream / milk 5.2 COCO,FOOD
PMP *gidik tickle [dbl: *gitik, *kitik] 27. PLAY
PMP *gililJ grind, mill 5.2 FARM, TOOL
PHN *gililjan block, obstruct 5.3 FARM, MOVE
PMP *giri tickle [dbl: *kidi] 27. PLAY
PMP *gitik tickle [dbl: *gidik, *kitik] 27. PLAY
PPH *gubat woods, forest 1.5 GEOG
PHF *guC+guC pull out, pluck; weed 5.1. FARM, MOVE
PMP *gu(n)+d2em overcast, darkened 1.3 NATR
PHN *halas woods, forest 1.4 GEOG
PMP *ha-d2fR housepost, pillar; pile; beam 12.2 BLDG
PHN *halás woods, forest 1.4 GEOG
PPH *haqu dew 1.5 NATR
PHN *haʔ+mrR seek, look for 8.4 HUNT
PHN *haʔnay set up warp on a loom; entwine 14. WEAV
PMP *hánin wind, air 1.3 NATR
PMP *pa-pèjes spicy hot; pain(ful) 9.2 FLAV, SICK
PMP *pa|hín mat, cover(ing) 13. BRAID
PPH *paqu pestle 5.3 RICE
PMP *paRedán notched log ladder, staircase 12.2 BLDG
PAN *Hásaq whet, sharpen; whetstone 3.2 FISHBODY
PHN *ha+sek dibble, sow (rice seedlings) 5.3 FARM, RICE
PAN *Hataq/m a- raw, unripe [dsj: *qa(n)taq] 9. COOK
PPH *haʔun take from the fire 9.4 COOK, FOOD
PPH? *hanyup animal 6.4 FAUNA
PHF *Hemáy rice (generic) [dbl: *Sumay] 5.1 FARM, RICE
PSP *heyás/m a- ashamed, lose face [cf: PAN *Siaq] 21. CULT
PHF *Hiáq count 19.1 NUM, BART
PPH *hi(N)-kutu delouse 24. GROOM
PAN *hiut rub, massage 25.1 SICK
PHN *hi+paR sister-in-law 20.3 KIN
PAN *Hipes cockroach 10. INSECT
PPH *hi+pun shrimp 3.4 SEA
PMP? *huaR vine, Flagellaria indica 4.2 FLORA

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PAN *Hules upper garment [ds: *qules 'blanket']
PAN *humbak swell, waves
PMP *i̱xam borrow [dbl: *Se(n)zam]
PMP *i̱but pull out, uproot [dbl: *a(m)+but] 
PMP *i̱ej cough
PMP *ilap apparition, glimpse of s.t.
PHF *ilem/ma-green
PHF *ileg turn, veer to the side
PAN *ina mother (M/MZ) [reference]
PHN *ina? mother [address]
PHN *inaH mother [address]
PHN *inaŋ mother [address]
PMP *inaŋ mother [address]
PMP *imam drink
PMP *inaq/ma-red
PHF *i̱ik thresh; [NPh] unhusked rice
PHN *ipit nits, louse eggs
PAN *isèd? fish; food eaten with the staple
PHH *isip count; think; consider
PHH *itu? dog; puppy
PAN *kaan eat
PHN *kibiR annex, subject; draw towards self
PMP *kibu kapok tree, Ceiba pentandra
PMP *kabut fog
PAN *kina? eat
PHN *kahiri scratch up the ground (chicken)
PAN *kaka sibling - older
PHN *kalamata plaitwork
PMP? *ќalag wedge
PHN *kalapini swallow
PHN *kalásag shield - rectangular [cf: *tamin]
PHN *kalasan forest
PHN *kalasar floor beam
PMP? *kalati worm = earthworm
PAN *kalaw dig (out); canal, ditch
PHF *kalCiC animal hide
PAN *kalih dig (out); canal, ditch
PMP *kamaliri bachelor's quarters; shed
PHF *kamaya plant, Diospyros discolor
PHN *kambio goat
PMP *kambu sprinkles, scatter (seed)
PHN *kamdiŋ goat
PAN *kami we [exclusive; cf: *kitá]
PMP? *kamuniŋ tree, Murraya paniculata
PMP? *kanaŋ tree, Cananga odorata
PMP *kanarum tree sp.
PMP *kanawa tree, Cordia spp.
PHN *kandiŋ goat
CMP *kandoRa cuscus
PMP *kantuŋ pouch, pocket, bag
PHN *ka-nu?us squid, cuttlefish [cf: PMP *nu?us]
PAN *kaNasay fish: adult mullet
TAM *kápal ship
IND *kapas cotton [ < PKT kappasa]
AUSTRONESIAN CULTURE HISTORY THROUGH RECONSTRUCTED VOCABULARY

PHN? *kapes cotton
IND *kapuk cotton [widespread loan]
PMP *kaput tie, clasp together
PHN *karat rust
PHF *kar+kar dig in the earth
PHF *kar+rut scrape, rasp
PMP *karakap crab - rock / mangrove
PMP *karPit tie, clasp together
PHF *karat rust
PHF *kar+rut scrape, rasp
PAN *karat bite
PAN *karaw mite; scratch (an itch)
PMP *kar+Rud scrape, grate, rasp
PMP *karuki crab - sand
PMP *kasambi? tree, Schleichera trijuga
PSP *kasili eel [cf: PHN *kasuli]
PHN *kasuli eel - freshwater
PHN *katambak fish sp.
PPH *katel itch(y)
PMP? *katiR outrigger
PAN? *kat+kat bite [cf: *kaRat]
PHN *ka?+wit hook (household)
PSP *kayab blanket
PHN *kayaw go head-hunting
PHN *kayuH tree, wood, stick
PMP *kawad wire
PHN? *kawali? tree sp.
CHN X Kaw pr frypan, cooking pot
PHF *kawayan bamboo - spiny, Bambusa spinosa
PHF *kawaiL hang(ing) caught
PHN *ka?+wit hook (household)
PAN? *kaRat bite
PHN *kaRliIJ scab
PMP? *ka+i1ej dive, plunge; drown
PMP? *keRtelJ fish: grouper
PMP? *keteb bite
PMP? *ketep bite

14. WEAV
14. WEAV
12.2 BLDG
18. METAL
5.1 FARM
12. BLDG
3.2 SEA
3.1 SEA
9. FOOD,MOVE
10. INSECT
12. BLDG
4.2 FLORA
12.2 BLDG
3.3 SEA,REPT
3.3 SEA,REPT
4. FLORA,PROD
3.3. FISH
25.1 SICK
2.2 BOAT
9. FOOD,MOVE
10.3 INSECT
18. METAL
9.3 COOK
9.3 COOK
4.1 FLORA,BLDG
8.1 HUNT
3. FISH,TOOL
12.3 BLDG,TOOL
14. WEAV
26. WAR
12. BLDG
13. BRAID
3.2 FISH
27. PLAY,CULT
3. FISH
9.2 FOOD
4.3 FLORA
8.3 HUNT,WAR
2.2 BOAT
25.2 SICK
26. WAR
6.2 FAUNA
25.3 SICK
3.4 SEA
25. SICK
3.2 FISH
9. FOOD,MOVE
9. FOOD,MOVE
PMP *ket+ket  bite, nibble
PHN *kilmá  know (person), recognise
PHF *kilá  lightning
PMP *kima  clam – giant
PHN? *kinág  rock crystal
PMP *kit  join along the length
PAN *kitá  we [inclusive; cf: *kamf]
PHN? *ki+tey  suspension bridge
PMP *kitik  tickle [dbl: *gidik, *giri]
PMP? *ki+kit  bite, nibble, chew
PMP *kuak  crow; bird with a deep cry
PAN *kuan  hamlet; kin-based residential unit
PHN *kúbít  touch lightly
PHF *kuCem  dark(ened)
PAN? *ku+CuH  head louse
PMP *ku+di2en  cooking pot; water jar
PMP *kiri+gu  thunder
PMP *kímb  al dry sago branches
PPH *kilia  blanket
PMP *kili  y/ma- yellow
PHF *ku nij turmeric, Curcuma zeodoaria
PMP *kur  word used to call chickens, etc.
PHN? *kurapu  fish: perch
PHF *kurap  scaly skin disease
PMP *kurap  fish: perch
PHF *kurap  scaly skin disease
PHN *kurap  fish: perch
PHN *kurap  scaly skin disease
PMP *kurapu  fish: perch
PHN? *kurapu  fish: perch
PHF *kurap  scaly skin disease
PMP *kurapu  fish: perch
PHN? *kurapu  fish: perch
PHF *kurap  scaly skin disease
PMP *lajia?  saw
PAN *lahHúd  towards the sea [cf: *daya]
PHN? *lahá  mix (together)
PHN? *lajá  weave (mat), braid
PMP *laji  tree with poison sap, Antiaris
PMP *lajih  fish: dolphinfish
PHF *lakay  husband; old (man)
PHN *laki  grandfather; old (of people)
PMP? *lákí  man, male
PHN *lákú?  peddle (PHN), sell (NPh)
PHF *LáLak  offspring, child
PHN *la-láki  man, male
<table>
<thead>
<tr>
<th>Keyword</th>
<th>Meaning</th>
<th>Category</th>
<th>Example 1</th>
<th>Example 2</th>
<th>Example 3</th>
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</thead>
<tbody>
<tr>
<td>PHN *lalatu</td>
<td>sparks, burning ashes in the wind</td>
<td>9.3 COOK,NATR</td>
<td>Bl-AE3</td>
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<tr>
<td>PHN *lalatu</td>
<td>ant sp.</td>
<td>10.3 INSECT</td>
<td>Bl-AE3</td>
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<tr>
<td>PMP *lələj</td>
<td>fly</td>
<td>10.2 INSECT</td>
<td>HK,Dp</td>
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<tr>
<td>PMP? *laluŋ</td>
<td>cock, rooster</td>
<td>27. COCK,FOWL</td>
<td>BI-CH,Hm,ZED</td>
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<tr>
<td>PHN *lambayıŋ</td>
<td>plant sp.</td>
<td>4.3 FLORA</td>
<td>Bl-AE3</td>
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<tr>
<td>PHF? *Lam+Lam</td>
<td>accustomed, tame</td>
<td>6.1 FAUNA</td>
<td>Ts</td>
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<tr>
<td>PMP *lamu(t)</td>
<td>seaweed sp., moss</td>
<td>3.2 SEA,FLORA</td>
<td>Bl-Hm</td>
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<tr>
<td>PMP *lamúŋ</td>
<td>mosquito</td>
<td>10.2 INSECT</td>
<td>Dp,BI-VRR,Z=</td>
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<tr>
<td>PHN *landasan</td>
<td>anvil</td>
<td>18. METAL</td>
<td>Dp,BI-CH</td>
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<tr>
<td>PHN? *lan+tay</td>
<td>floor(ing)</td>
<td>12.3 BLDG</td>
<td>ZED</td>
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</tr>
<tr>
<td>PMP *lān[a]h</td>
<td>vegetable oil</td>
<td>9.2 FOOD,PROD</td>
<td>Ch,Z=,Bl-AE2</td>
<td></td>
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<tr>
<td>PMP *läŋen</td>
<td>rollers for beaching a canoe</td>
<td>2.2 BOAT</td>
<td>BI-CH,ZED</td>
<td></td>
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<tr>
<td>PHF *läŋesej</td>
<td>stench of putrid urine</td>
<td>30. SMEL</td>
<td>Z=,&lt;Bl-AE3</td>
<td></td>
<td></td>
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<tr>
<td>PAN *läŋit</td>
<td>sky, heaven</td>
<td>1.1 NATR</td>
<td>Dp,Ts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPH *läŋkaŋ</td>
<td>jackfruit</td>
<td>4.3 FLORA,FOOD</td>
<td>Z=,Bl-AE4</td>
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<td></td>
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<tr>
<td>PHF *Lāŋ+siŋ</td>
<td>odour, stench (of fish/blood)</td>
<td>30. SMEL</td>
<td>Z=,&lt;Bl-AE4</td>
<td></td>
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<tr>
<td>PHF *läŋu</td>
<td>swim [dbl: *daŋuy, *naŋuy]</td>
<td>2.1 BOAT,MOVE</td>
<td>Dp,Ts</td>
<td></td>
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<tr>
<td>PMP *lap</td>
<td>flash, sparkle</td>
<td>1.3 NATR</td>
<td>Bl-Root</td>
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<tr>
<td>PHN *laŋqu</td>
<td>pestle</td>
<td>5.3 RICE</td>
<td>Z=,Bl-AE1,AE4</td>
<td></td>
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</tr>
<tr>
<td>PMP? *laŋya</td>
<td>ginger [dbl: *laqia, *luŋya]</td>
<td>5.2 FARM,FOOD</td>
<td>Bl-CH,Hm,Dy,Z</td>
<td></td>
<td></td>
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<tr>
<td>PHF? *laRaŋ</td>
<td>forbid</td>
<td>22. RITE,CULT</td>
<td>Dp,BI-AE4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *laRiw</td>
<td>run (away)</td>
<td>26. WAR</td>
<td>Dp,Noth,Z=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *la+sem</td>
<td>sour</td>
<td>9. FLAV</td>
<td>Bl-AE3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP *laqen</td>
<td>nettle, Laportea [Db: zalaten]</td>
<td>4.2 FLORA</td>
<td>Bl-Hm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *latiŋ</td>
<td>swampy ground</td>
<td>1.4 NATR</td>
<td>Bl-AE3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF *Laŋuŋ</td>
<td>shadow, shade(d)</td>
<td>29. COLOUR</td>
<td>DyTs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *lawah</td>
<td>drop by, pay a visit</td>
<td>20.3 KIN,CULT</td>
<td>Z=,&lt;Bl-AE4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN *läwaq</td>
<td>spider</td>
<td>10. INSECT</td>
<td>HK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP *lawí</td>
<td>tail feather</td>
<td>7.2 BIRD</td>
<td>Bl-VRR,Dp,Ch,Z=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSP *lawiR</td>
<td>hut, house</td>
<td>12.4 BLDG</td>
<td>Z=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP *lasya</td>
<td>affinal cousin (FZS, ZH)</td>
<td>20.1 KIN</td>
<td>Bl-SOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *layaŋ</td>
<td>fly [v]</td>
<td>7.1 BIRD,MOVE</td>
<td>Dp,Z=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF *layap</td>
<td>fly [v]</td>
<td>7.1 BIRD,MOVE</td>
<td>Bl-AE3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP *läyaR</td>
<td>sail</td>
<td>2.2 BOAT</td>
<td>Bl-CH,ZED,Dy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPH *lebág</td>
<td>swell(ing) of stomach due to gas</td>
<td>25.4 SICK</td>
<td>Z=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *le(m)bak</td>
<td>valley</td>
<td>1.4 GEOG</td>
<td>Bl-AE3#182</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *le(m)baŋ</td>
<td>valley, watercourse between hills</td>
<td>1.4 GEOG</td>
<td>Bl-AE3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *lebęŋ</td>
<td>bury</td>
<td>23. DEATH</td>
<td>Dp,Dy,McF,Z=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *le(m)bęŋ</td>
<td>valley; deep water between hills</td>
<td>1.4 GEOG</td>
<td>Bl-AE4,Z=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *lebųq</td>
<td>settlement, village area</td>
<td>20.3 KIN,CULT</td>
<td>Bl-PA3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP *le(q)+gur</td>
<td>thunder</td>
<td>1.3 NATR</td>
<td>Bl-AE4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF *Le+keC</td>
<td>stick, adhere</td>
<td>12. BLDG,PROD</td>
<td>Dp,BI-Root,Ts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF* *Lek+Lek</td>
<td>tickle</td>
<td>27. PLAY</td>
<td>DyTs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *le(b)+leb</td>
<td>forfei[t</td>
<td>19.3 BART</td>
<td>Bl-AE4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN *lem</td>
<td>dark</td>
<td>29. COLOUR</td>
<td>Bl-Root</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP *le+mek</td>
<td>fertile (of soil)</td>
<td>5.2 FARM</td>
<td>Bl-AE1,AE3</td>
<td></td>
<td></td>
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<tr>
<td>PMP *lemeŋ</td>
<td>wet (of soil)</td>
<td>5.2 FARM</td>
<td>Bl-AE4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPH *lëmës</td>
<td>drown</td>
<td>2.4 BOAT</td>
<td>Z=</td>
<td></td>
<td></td>
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<tr>
<td>PHN *lentiq</td>
<td>thunder storm, lightning bolt</td>
<td>1.4 NATR</td>
<td>Bl-AE2,Z=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN? *lēpäh</td>
<td>sesame, Sesamum indicum</td>
<td>5.3 FARM,FOOD</td>
<td>Dp,Dy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *lē(m)paŋ2</td>
<td>fly [v]</td>
<td>7.1 BIRD,MOVE</td>
<td>Bl-PAA,Z=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN *le+paw</td>
<td>village granary, field house, hut</td>
<td>12. BLDG</td>
<td>Bl-Hs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN *lepuq</td>
<td>bone fracture; crooked (of limbs)</td>
<td>25.3 SICK</td>
<td>Bl-AE3</td>
<td></td>
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<tr>
<td>PMP *le+put</td>
<td>use a blowpipe</td>
<td>26. WAR</td>
<td>Bl-AE1,AE4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP *lešeq</td>
<td>nit, lousepipe</td>
<td>10. INSECT</td>
<td>Bl-AE3#191</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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PHF  *le+*sít  squeeze/squirt-out  25.2 SICK  Bl-AE1
PHF  *le+suŋ  mortar  5.1 FARM,TOOL  Bl-CH,Ts,ZED
PHN  *le(n)+táw  float  2.3 BOAT  Z=,Bl-AE4
PMP  *liŋ  cave  1.3 + 23. NATR  Bl-PA2,Dp,Noth
PSF  *li+kuLáw  leopard  14. WEAV  Bl-AE3
PMP  *li+li  woman  6. FAUNA  Dy,Ts
PAN  *Li+Bu[?H]  lair, den, nest  6.2 FAUNA  Ts,Z=
PHN  *li(n)+ji  batten of a loom  14. BEE  Bl-AE3
PSF  *likuLá  fire  19. NUM  Dp,Ts,ZED
PMP  *li+suIJ mortar  2.2 BOAT  Bl-CH,Dy,ZED
PMP  *li+nuaw  Citrus fruit  4.2 FLORA,FOOD  Bl-CH,Dy,ZED
PMP  *li+nuut  seaweed sp.  3.2 SEA,FLORA  Bl-Hm
PHN  *li+nd2uIJ  protect(ion)  12.3 BLDG,WAR  Dp,Dy
PHN  *li+nd2uR  earthquake  1.4 NATR  Dp,Z=
PHN  *li+taq  leech  10.1 INSECT  Dp,Z=
PHF  *li+nuR  earthquake  1.2 NATR  Bl-Hm
PMP  *li+R  flow  1.3 NATR  Bl-Root,Z=
PAN  *liša  five  10. INSECT  Bl-PA1
PAN  *lišaSāq  five  10. INSECT  HK,Z=,Ts
PMP  *li+it  cautling; glue  2.2. BOAT  Bl-Root
PHN  *li(n)+tem  deep black, shiny black  29. COLOUR  Bl-AE3
PAN  *li+u-2  turn, veer to the side  2. BOAT  Bl-VRR
PHF  *Li+uq  monkey sp.  6.1 FAUNA,FARM  Bl-LVWL,Da,Z=
PPH  *li+uq  cow  13. BRAID  Z=
PSF  *li+Cuŋ  monkey sp.  6.1 FAUNA  HK,BL-LVWL,Hm
PSP  *luhnaw  green  29. COLOUR  Z=,Bl-Tir
PMP  *lujan  load a canoe; cargo  2.2 SEA,MOVE  Bl-AE3,Z=
PHF  *Lu+kuH  wound(ed)  25. SICK,WAR  Dy,Ts
PAN  *lu+kC  parasitic plant, *Asplenium nidus  4. FLORA  Bl-AE1,Hm
PHN  *Lu+maq  weak, tired; worn-out  25.3 SICK  Bl-AE4
PMP  *lu+mbaru  set free  26. WAR  Bl-AE4
PMP  *lu+mbu  unidentified plant sp.  4.2 FLORA  Bl-AE4
PMP  *lu+mut  seaweed sp., moss  3.2 SEA,FLORA  Bl-Hm
PPH  *li+nuq  sink  2.4 BOAT  Z=
PHN  *lu+gün  coffin  23. DEATH  Bl-PAA,Ch,Z=
PHF  *lu+Sa  spit (out)  9.1 FOOD  Bl-AE4
PHN  *Lu+R  flow  1.4 NATR  Bl-Root
PPH  *lu+Sī  penis  27. SEX  Z=
PHF  *lu+suŋ  mortar  5.1 FARM,TOOL  Ts
PHN  *lu(n)+nuq  cook  9.3 FOOD  Dp,Z=
PHF  *lu+um  ripe  4.1 FLORA  Z=,Bl-AE3
PPH  *lu+um  ripe  25.3 SICK  Z=,Bl-AE4
PHN  *lu+yah  weak, wornout  19.4 NUM  Z=
PPH  *ma-  one unit (10, 100, 1000)  19.4 NUM  Z=
WIN?  *madu-  honey  11. BEE  Dp
PMP  *ma-isá  one, only, alone  19.2 NUM  Bl-AE3
PMP  *maka-empu  grandchild  20.1 KIN  Bl-SOC
PHF  *ma-lat  machete, parang, sword  12.1+18. METAL  Bl-CH,ZED
PHF  *mali  plant, *Leea spp.  4.2 FLORA  Bl-AE3,Hm
PMP  *maliq  pregnant  22. RITE,CULT  ZED
PAN  *mama  father [children's vocative form]  27. SEX  Bl-AE4
PMP  *mamaq  chew (but not intend to eat)  20. KIN  Dp,Bl-VRR
PMP  *mamín  fish: wrasse, *Cheilinus sp.  28. BETEL  Dp,Bl-PA1,Dy,Z=
PSP  *raam(a)q-en  areca nut  3.2 FISH  Bl-AE3,Hm
MSP  *raam(a)q-en  peanut  28. BETEL  Z=
PHF  *ma-lQi  pregnant  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
MSP  *ma+Tuq  one  4.4. FLORA,FOOD  Z=
<table>
<thead>
<tr>
<th>Category</th>
<th>Word</th>
<th>Meaning</th>
<th>Part of Speech</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>mansar</em></td>
<td>bandicoot, marsupial rat</td>
<td>Noun</td>
<td>FAUNA B1-LVWL,Hm</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>manúk</em></td>
<td>chicken, bird, fowl</td>
<td>Noun</td>
<td>BIRD,FOWL Dp,VRR</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>markuk</em></td>
<td>fish: marine sp.</td>
<td>Noun</td>
<td>FISH Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>matsit</em></td>
<td>cup, bowl</td>
<td>Noun</td>
<td>POT ZED,Dy</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>medáw</em></td>
<td>tree sp. similar to breadfruit</td>
<td>Noun</td>
<td>FLORA,FOOD Bl-NS</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>mañá</em></td>
<td>fat, grease</td>
<td>Noun</td>
<td>FOOD Dp,BI-VRR</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>nisít</em></td>
<td>ant with venomous bite</td>
<td>Noun</td>
<td>INSECT Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>miñúm</em></td>
<td>drink [ &lt;<em>(u)m-inum]</em></td>
<td>Noun</td>
<td>FOOD,GROG Z=</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>miñak</em></td>
<td>fat, grease, oil</td>
<td>Noun</td>
<td>FOOD Bl-VRR,Noth</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>misik</em></td>
<td>sucking noise made to signal s.o.</td>
<td>Noun</td>
<td>INSECT Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>muñuk</em></td>
<td>cup, bowl</td>
<td>Noun</td>
<td>POT Bl-AE3,Hm</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>muñit</em></td>
<td>plant [v]</td>
<td>Noun</td>
<td>FRUIT Bl-AE3</td>
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<tr>
<td><strong>ANIMALS</strong></td>
<td><em>muñay</em></td>
<td>swim [dbl: <em>dañay</em>, <em>lanay</em>]</td>
<td>Noun</td>
<td>BOAT,MOVE Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>muñú</em></td>
<td>civetcat</td>
<td>Noun</td>
<td>FAUNA Bl-Hm</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>mutu</em></td>
<td>fish: damsel fish</td>
<td>Noun</td>
<td>FISH Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>nañá</em></td>
<td>mother [children's vocative form]</td>
<td>Noun</td>
<td>KIN Bl-Nov</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>nañaq</em></td>
<td>pus</td>
<td>Noun</td>
<td>SICK Dp,Dy,Ts,Z=</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>nañaj</em></td>
<td>estuary, river mouth [dbl: <em>binañaj</em>]</td>
<td>Noun</td>
<td>GEOG Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>rattan sp.</td>
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<td>FAUNA Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>swim [dbl: <em>dañay</em>, <em>lanay</em>]</td>
<td>Noun</td>
<td>BOAT,MOVE Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>plant for basket, <em>Donax canniformis</em></td>
<td>Noun</td>
<td>BLDG,BRAID Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>echo</td>
<td>Noun</td>
<td>NATR Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>nipa reed, <em>Nypa fruticans</em></td>
<td>Noun</td>
<td>BLDG,FLORA Dp,Z=</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>snake</td>
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<td>FAUNA,REPT Bl-AE2</td>
</tr>
<tr>
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<td><em>najay</em></td>
<td>winnowing basket</td>
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<td>FAUNA Bl-AE3,Hm</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>fern, <em>Lygodium circinnatum</em></td>
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<td>FAUNA Bl-AE3,Hm</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>coconut</td>
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<td>FARM Bl-AE3,Hm,Dy,Z</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>gnat, sandfly</td>
<td>Noun</td>
<td>INSECT Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>fish: stonefish</td>
<td>Noun</td>
<td>FISH Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>bright light</td>
<td>Noun</td>
<td>NATR Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>shake, tremble, rock</td>
<td>Noun</td>
<td>NATR Bl-AE2</td>
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<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>plant for basket, <em>Donax canniformis</em></td>
<td>Noun</td>
<td>BLDG,BRAID Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>echo</td>
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<td>NATR Bl-AE3</td>
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<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>nipa reed, <em>Nypa fruticans</em></td>
<td>Noun</td>
<td>BLDG,FLORA Dp,Z=</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>cook by boiling [dbl: <em>Nasu</em>]</td>
<td>Noun</td>
<td>FOOD Bl-AE3,Hm</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>gnat, sandfly</td>
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<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
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<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
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<td>Noun</td>
<td>BLDG,BRAID Bl-AE3</td>
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<td><strong>ANIMALS</strong></td>
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<td><strong>ANIMALS</strong></td>
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<td>nipa reed, <em>Nypa fruticans</em></td>
<td>Noun</td>
<td>BLDG,FLORA Dp,Z=</td>
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<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>cook by boiling [dbl: <em>Nasu</em>]</td>
<td>Noun</td>
<td>FOOD Bl-AE3,Hm</td>
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<tr>
<td><strong>ANIMALS</strong></td>
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<td>gnat, sandfly</td>
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<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>fish: stonefish</td>
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<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>plant for basket, <em>Donax canniformis</em></td>
<td>Noun</td>
<td>BLDG,BRAID Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>echo</td>
<td>Noun</td>
<td>NATR Bl-AE3</td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
<td><em>najay</em></td>
<td>nipa reed, <em>Nypa fruticans</em></td>
<td>Noun</td>
<td>BLDG,FLORA Dp,Z=</td>
</tr>
<tr>
<td>Code</td>
<td>Word</td>
<td>Meaning</td>
<td></td>
<td></td>
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<tr>
<td>------</td>
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<td>---------</td>
<td></td>
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</tr>
<tr>
<td>PMP</td>
<td>*ñeñu</td>
<td>tree, <em>Morinda citrifolia</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN?</td>
<td>*páján</td>
<td>name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPH?</td>
<td>*ga+pá?</td>
<td>betel chew</td>
<td></td>
<td></td>
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<tr>
<td>PMP</td>
<td>*geni</td>
<td>beg, ask for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*pa(R)-bélí</td>
<td>sell</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*pa+cék</td>
<td>drive in (as post, nail or wedge)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAM</td>
<td>*pudúw</td>
<td>sail boat [contrast: *pa-laHud]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*padek</td>
<td>husk (of rice)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*pa'tén</td>
<td>bait</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*pa'tén</td>
<td>bait</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN?</td>
<td>*pager</td>
<td>fence, enclosure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPH?</td>
<td>*pag'uj</td>
<td>land turtle sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN?</td>
<td>*pahid</td>
<td>wipe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*pašku</td>
<td>fern, <em>Athyrium esculentum</em></td>
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<tr>
<td>PHN</td>
<td>*pašuq</td>
<td>mango, <em>Mangifera indica</em></td>
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<tr>
<td>PHF</td>
<td>*pašjey</td>
<td>rice plant, unhusked rice, paddy</td>
<td></td>
<td></td>
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<tr>
<td>PAN</td>
<td>*pa-ka-maCey</td>
<td>kill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*pa+pak</td>
<td>wing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*pašku</td>
<td>stake; nail</td>
<td></td>
<td></td>
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<tr>
<td>PAN</td>
<td>*pa-laHúd</td>
<td>go to sea [NOT: *para[qh]u]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN?</td>
<td>*pali?</td>
<td>cut, wound, scar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*paliSi</td>
<td>taboo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*paško</td>
<td>hit (with stick or club)</td>
<td></td>
<td></td>
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<tr>
<td>PMP</td>
<td>*pašjuy</td>
<td>row, paddle [v; dbl: aluja]</td>
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<tr>
<td>PPH?</td>
<td>*pašluq</td>
<td>breakfast; cold food [cf: *báhuw]</td>
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<tr>
<td>PAN</td>
<td>*pašnuq</td>
<td>bow and arrow; to shoot an arrow</td>
<td></td>
<td></td>
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<tr>
<td>PMP</td>
<td>*pašnas/mañaw</td>
<td>warm, hot (of weather)</td>
<td></td>
<td></td>
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<tr>
<td>IND</td>
<td>*panday</td>
<td>skin disease leaving white patches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*pañíj</td>
<td>wing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*pañiki</td>
<td>fruit bat</td>
<td></td>
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</tr>
<tr>
<td>PHN</td>
<td>*pántek</td>
<td>spotted, dappled</td>
<td></td>
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<tr>
<td>PAN</td>
<td>*patud2án</td>
<td>pandanus tree, <em>Pandanus tectorius</em></td>
<td></td>
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<tr>
<td>PMP?</td>
<td>*pa(m)pa/</td>
<td>tree, <em>Vitex pubescens</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*papán</td>
<td>board, plank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*pa-pitú</td>
<td>seven</td>
<td></td>
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</tr>
<tr>
<td>PHN</td>
<td>*paqét</td>
<td>chisel</td>
<td></td>
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</tr>
<tr>
<td>PHF</td>
<td>*paqíC</td>
<td>bitter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN?</td>
<td>*parúk</td>
<td>frypan; cooking pot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*parud</td>
<td>rasp [v]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP?</td>
<td>*páRa</td>
<td>storage shelf, rack above hearth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP?</td>
<td>*pa+Raw</td>
<td>hoarse [dbl: *gaRaw]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*paRíS</td>
<td>rayfish, stingray</td>
<td></td>
<td></td>
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<tr>
<td>PPH</td>
<td>*pasayan</td>
<td>shrimp sp.</td>
<td></td>
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</tr>
<tr>
<td>PHF</td>
<td>*pa-Súay</td>
<td>spend time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*pašúng</td>
<td>bamboo sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPH</td>
<td>*pawikan</td>
<td>sea turtle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*páyun</td>
<td>umbrella</td>
<td></td>
<td></td>
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<tr>
<td>PMP</td>
<td>*pe(R)+cit</td>
<td>squeeze, squirt out</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*pejés</td>
<td>pain(ful)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*pejés</td>
<td>spicy, hot (food) [cf: <em>ha-pejés</em>]</td>
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</tr>
<tr>
<td>PHF</td>
<td>*pejiq</td>
<td>pain(ful); smart, sting</td>
<td></td>
<td></td>
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<tr>
<td>PMP</td>
<td>*pened</td>
<td>official gathering</td>
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</table>

**FLORA**

- 4.2 *Morinda citrifolia* (tree)
- 21. *CULT* (name)
- 28. *BETEL* (betel chew)
- 21.2 *CULT* (beg, ask for)
- 19. *BART* (sell)
- 12. *BLDG,MOVE* (drive in)
- 26. *WAR* (kill)
- 2.4 *BOAT* (sail boat)
- 5.3 *FARM,RICE* (husk of rice)
- 3.1 *FISH* (bait)
- 8.1 *HUNT* (bait)
- 12.3 *SEAL* (fence, enclosure)
- 3.4 *SEA* (land turtle sp.)
- 24. *GROOM* (wipe)
- 4. *FLORA* (fern)
- 4.3 *FLORA* (mango)
- 5.1 *RICE,FARM* (rice plant)
- 26. *WAR* (go to sea)
- 6.4 *FAUNA* (cut, wound, scar)
- 25.3 *SICK,WAR* (wing)
- 22. *RITE* (taboo)
- 26. *WAR* (hit)
- 2.2. *BOAT* (row, paddle)
- 9.4 *FOOD* (breakfast; cold food)
- 8. *HUNT,WAR* (bow and arrow)
- 1.3 *NATR* (warm)
- 25.2 *SICK* (skin disease)
- 18. *METAL* (craftsman)
- 7. *BIRD* (fruit bat)
- 29. *COLOUR* (spotted, dappled)
- 4. *FLORA* (pandanus tree)
- 4.2 *FLORA* (tree)
- 12.2 *BLDG* (board, plank)
- 19.1 *NUM* (seven)
- 12.3 *BLDG,TOOL* (chisel)
- 9.1 *FLAV* (bitter)
- 9.3 *FOOD,TOOL* (frypan; cooking pot)
- 12.2 *BLDG,TOOL* (rasp)
- 12.2 *BLDG* (storage shelf, rack above hearth)
- 3. *FISH* (rayfish, stingray)
- 3.4 *SEA* (spend time)
- 27. *PLAY,CULT* (bamboo sp.)
- 4.3 *FLORA* (sea turtle)
- 3.4 *SEA* (umbrella)
- 16. *CLOTH* (hoarse)
- 25.2 *SICK* (hoarse)
- 25.1 *SICK* (rayfish, stingray)
- 9.2 *FLAV* (spend time)
- 25.1 *SICK* (spend time)
- 20.1 *KIN,CULT* (spend time)
<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Category</th>
<th>Region(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMP *pēnūh</td>
<td>green sea turtle, tortoise</td>
<td>3.2 SEA</td>
<td>HK,Dy,BI-Hm,Z</td>
</tr>
<tr>
<td>PMP *pe+rāh</td>
<td>fork of a branch</td>
<td>4.2 FLORA</td>
<td>BI-AE3</td>
</tr>
<tr>
<td>PMP *perīŋ</td>
<td>bamboo, *Bambusa vulgaris (?)</td>
<td>4.2 FLORA</td>
<td>BI-AE1,Hm</td>
</tr>
<tr>
<td>PMP *peRāq</td>
<td>squeeze, wring out</td>
<td>24. GROOM</td>
<td>Dp,Dy,Noth,Z=</td>
</tr>
<tr>
<td>PMP *peRēs</td>
<td>squeeze</td>
<td>24. GROOM</td>
<td>Dp,BI-PA1,Z=</td>
</tr>
<tr>
<td>PPH *peRsah</td>
<td>boil, abscess</td>
<td>25.2 SICK</td>
<td>Z=</td>
</tr>
<tr>
<td>PPH *pesēl</td>
<td>squeeze, massage</td>
<td>25.1 SICK</td>
<td>Z=,BI-PA6</td>
</tr>
<tr>
<td>PMP *pes+pes</td>
<td>squeeze</td>
<td>25.2 SICK</td>
<td>BI-AE2</td>
</tr>
<tr>
<td>PAN *pijāH</td>
<td>how many?</td>
<td>19. NUM(QP)</td>
<td>Dp,Ts,Z=</td>
</tr>
<tr>
<td>PAN *pik</td>
<td>pat, light slap</td>
<td>21. CULT</td>
<td>BI-Root</td>
</tr>
<tr>
<td>PSP *pił</td>
<td>attach, join</td>
<td>12.2 BLDG</td>
<td>BI-Root</td>
</tr>
<tr>
<td>PSP *pila?</td>
<td>wound; slap</td>
<td>25.3 SICK</td>
<td>Z=</td>
</tr>
<tr>
<td>PPH *pi(lat)</td>
<td>scar</td>
<td>25.3 SICK</td>
<td>Z=</td>
</tr>
<tr>
<td>PHF *piLay</td>
<td>lame</td>
<td>25.1 SICK</td>
<td>Dy,Ts,Z=</td>
</tr>
<tr>
<td>PHF *pfīq</td>
<td>choose, select</td>
<td>19. BART</td>
<td>Dp,Ts,Z=</td>
</tr>
<tr>
<td>PHN? *pīrk</td>
<td>silver</td>
<td>18. METAL</td>
<td>Dp,Z=</td>
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<tr>
<td>PHN *piRah</td>
<td>roe, fish eggs [cf: PAN *biRaS]</td>
<td>25.2 SICK</td>
<td>BI-AE1</td>
</tr>
<tr>
<td>PHN *piRah</td>
<td>abscess, boil</td>
<td>25.3 SICK</td>
<td>BI-AE2,Noth</td>
</tr>
<tr>
<td>PWI *piRah</td>
<td>banana</td>
<td>5. FARM,FLORA</td>
<td>HK,Dp</td>
</tr>
<tr>
<td>PHN *pisāw</td>
<td>knife</td>
<td>9.3 COOK,WAR</td>
<td>ZED</td>
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<tr>
<td>PHN *pisē</td>
<td>blind in one eye</td>
<td>25.3 SICK</td>
<td>BI-PAA,Noth</td>
</tr>
<tr>
<td>PMP *pis+pis</td>
<td>squeeze</td>
<td>25.2 SICK</td>
<td>BI-VRR</td>
</tr>
<tr>
<td>PPH *pisak</td>
<td>mud [cf: PPH *pitek]</td>
<td>5.2 FARM</td>
<td>BI-AE2</td>
</tr>
<tr>
<td>PHN *piRah</td>
<td>abscess, boil</td>
<td>25.3 SICK</td>
<td>BI-AE2,Noth</td>
</tr>
<tr>
<td>PAN *pītC</td>
<td>bamboo, *Dendrocalamus [dbl: *bitu]</td>
<td>4.2 FLORA</td>
<td>BI-Hm</td>
</tr>
<tr>
<td>PMP *puaŋ</td>
<td>title of respect</td>
<td>20.1 KIN,SOC</td>
<td>BI-AE3</td>
</tr>
<tr>
<td>PHF *puCaq</td>
<td>foam, froth, lather [cf: *bujaq]</td>
<td>1.2 NATR</td>
<td>BI-AE3,Ts</td>
</tr>
<tr>
<td>PHN *pūaR</td>
<td>drive off a bee, smoke bees away</td>
<td>11. BEE</td>
<td>Ch,BI-PAA</td>
</tr>
<tr>
<td>PPH *puq</td>
<td>island</td>
<td>1.5 GEOG</td>
<td>Z=</td>
</tr>
<tr>
<td>PHN *pu+kas</td>
<td>nudity, exposure of the body</td>
<td>16. CLOTH</td>
<td>BI-AE3</td>
</tr>
<tr>
<td>PMP *puket</td>
<td>dragnet</td>
<td>3.2 FISH</td>
<td>BI-CH,Dy,ZED</td>
</tr>
<tr>
<td>PMP? *pińQ</td>
<td>vagina</td>
<td>29. COLOUR</td>
<td>BI-nc,Z=</td>
</tr>
<tr>
<td>PMP *pulāh</td>
<td>red</td>
<td>19. NUM</td>
<td>Dp,Da,Ts,ZED</td>
</tr>
<tr>
<td>PPH *pulaw</td>
<td>hunt (at night)</td>
<td>8.4 HUNT</td>
<td>Z=</td>
</tr>
<tr>
<td>PPH *puńQ</td>
<td>blinded by mote in eye</td>
<td>25.4 SICK</td>
<td>Ch,Z=</td>
</tr>
<tr>
<td>PAN *puluC</td>
<td>mucilaginous plant, *Urena lobata</td>
<td>4. FLORA</td>
<td>BI-AE3,Hm,Dp</td>
</tr>
<tr>
<td>PAN *pulq</td>
<td>ten</td>
<td>19. NUM</td>
<td>ZED</td>
</tr>
<tr>
<td>PMP *pulut</td>
<td>bird lime</td>
<td>8.2 HUNT</td>
<td>BI-CH,ZED</td>
</tr>
<tr>
<td>PPH *punas</td>
<td>wipe (off)</td>
<td>24. GROOM</td>
<td>Z=</td>
</tr>
<tr>
<td>PAN *pūnay</td>
<td>wild dove</td>
<td>7. BIRD</td>
<td>Ts,BI-Hm,Z=</td>
</tr>
<tr>
<td>PMP? *pun</td>
<td>tree fern, Cyathea sp.</td>
<td>4.2 FLORA</td>
<td>BI-AE3,Hm</td>
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<tr>
<td>PHN *punti/-</td>
<td>fish: marine sp.</td>
<td>3.3. FISH</td>
<td>BI-AE3</td>
</tr>
<tr>
<td>PMP *punti</td>
<td>banana</td>
<td>5.2 FARM,FLORA</td>
<td>BI-CH,Hm,Dy,Z=</td>
</tr>
<tr>
<td>PMP *punti/-</td>
<td>fish: marine sp.</td>
<td>3.3. FISH</td>
<td>BI-AE3</td>
</tr>
<tr>
<td>PPH *puniq</td>
<td>tree trunk</td>
<td>4.1 FLORA</td>
<td>Dp,Dy,Z=</td>
</tr>
<tr>
<td>PAN *puŋ</td>
<td>bunch, cluster</td>
<td>4. FLORA,MEAS</td>
<td>BI-AE1,Root,Z=</td>
</tr>
<tr>
<td>PMP *puqun</td>
<td>tree trunk</td>
<td>4.1 FLORA</td>
<td>Dp,Dy,Z=</td>
</tr>
<tr>
<td>PMP *purăh</td>
<td>red [cf: PSP *pulāh]</td>
<td>29. COLOUR</td>
<td>BI-AE2,Z=</td>
</tr>
<tr>
<td>PHN *pūRuq</td>
<td>quail, *Turnix sp. [dbl: *puyuq]</td>
<td>7.3 BIRD</td>
<td>BI-AE3,Z=</td>
</tr>
<tr>
<td>PHN *pūsa?</td>
<td>cat</td>
<td>6.3 FAUNA</td>
<td>Dp,Z=</td>
</tr>
<tr>
<td>CHN *putaw</td>
<td>iron axe</td>
<td>12.2 METAL</td>
<td>ZED</td>
</tr>
<tr>
<td>PAN? *putq</td>
<td>white</td>
<td>29. COLOUR</td>
<td>Dp,Dy,Z=</td>
</tr>
<tr>
<td>PHN *puyuq</td>
<td>quail [dbl: *puyuq]</td>
<td>7.3 BIRD</td>
<td>BI-AE3</td>
</tr>
<tr>
<td>PHF *gabaŋ</td>
<td>canoe: dugout; boat</td>
<td>2.1 BOAT</td>
<td>BI-CH,Hm,ZED</td>
</tr>
<tr>
<td>PHN? *qa(m)+baR</td>
<td>tasteless</td>
<td>9.3 FLAV</td>
<td>Z=</td>
</tr>
</tbody>
</table>
586 R. DAVID PAUL ZORC

PHN *qabu-2 murrel, Ophiocephalus striatus

PHN *qa(m)+bud2 strew, scatter

PHN? *qabúH ash(es)

PMP *qa-buk dust [cf: PHN *a+búg]

PHF *qaCeb trap

PAN *qaCí/ma- low tide; exposed reef

PSp *qadamay ramie, Boehmeria nivea [cf: *rami]

PNP *qadípen slave [cf: PHN *qadíf-en]

PHN *qahlu pestle

PAN *qa(n)jaw sun

PHN *qa+jeg charcoal

PHF *qálad fence

PHN? *qalámen grass

PAN *qaCi /ma - low tide; exposed reef

PSP *qadamay ramie, Boehmeria nivea [cf: *rami]

PHN *qafpen slave [cf: PHN *qudfp-en]

PHF *qalad fence

PHF *qal+seR stench of urine

PHF *qal+suH stench

PHF *qal+RiS strong smell of fish

PHF *qaJhu pestle

PAN *qa+jeIJ charcoal

PHF *qamCipa turtle sp.

PMP *qaliliIJ shell: cateye shell

PHN *qa+meCaq paddy leech

PHN *qaJhu pestle

PMP *qalun wave

PMP *qalun-an wooden headrest, pillow

PHF *qaNúNuaj tree, Cordia dichotoma ~ myxa

PHF *qaNúNuaj tree, fruit, Annona reticulata

PAN *qaNúNuaj hunt, go hunting

PAN *qa+ud drift with current

PAN *qa+ smell of [x]

PMP *qaq-JiC cooking pot (for scorching); burnt

PMP *qaq+RiS strong smell of fish

PHF *qaq+Ru stench (as of spoiled meat)

PHF *qaq+seR stench of urine

PHF *qaq+suH stench

PAN *qaq+Sit stink, stench, foul-smelling
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<td>rice husk</td>
<td>FARM, RICE</td>
<td>Bl-Hm</td>
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<td>PHF *qapucuk</td>
<td>peak of a mountain</td>
<td>GEOG</td>
<td>Bl-AE4</td>
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<td>PMP? *qapuR</td>
<td>dust</td>
<td>NATR</td>
<td>BI-PA3</td>
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<td>PAN *qapuR</td>
<td>lime (for betel quid)</td>
<td>BETEL</td>
<td>Bl-CH, Dy, Ts</td>
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<td>PMP? *qaRa?</td>
<td>fig tree, <em>Ficus</em> sp.</td>
<td>FLORA, FOOD</td>
<td>Bl-AE3, Hm</td>
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<td>PHN *qaRama</td>
<td>crab sp.</td>
<td>SEA</td>
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<td>PHF *qa RAW</td>
<td>snatch, grab</td>
<td>HUNT</td>
<td>Z=</td>
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<td>PHF *qaRim?aw</td>
<td>scaly anteater, pangolin</td>
<td>FAUNA</td>
<td>Bl-LVWL, Hm, Ts</td>
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<td>PHN *qaR</td>
<td>alien person, outsider; Negrito</td>
<td>CULT</td>
<td>Bl-PA1, Z=</td>
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<td>PM1 *qaRuas</td>
<td>young mullet, <em>Neomyxus chaplashii</em></td>
<td>FISH</td>
<td>Bl-AE3, Hm</td>
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<tr>
<td>PM1 *qaRūhu?</td>
<td>pine tree, <em>Casuarina equisetifolia</em></td>
<td>FLORA</td>
<td>ZED, Bl-Hm, Dy</td>
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<tr>
<td>PM1 *qaRus</td>
<td>current, flow</td>
<td>NATR</td>
<td>Dp, Da, Z=</td>
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<tr>
<td>PAN *qasawa</td>
<td>spouse, wife; husband; marry</td>
<td>KIN, SEX</td>
<td>Dp, Dy, Ts, Z=</td>
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<tr>
<td>PAN *qasīN</td>
<td>salt(y)</td>
<td>FLAV, FOOD</td>
<td>Bl-CH, ZED</td>
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<td>PM1 *qasūh</td>
<td>smoke</td>
<td>COOK</td>
<td>Dp, Dy, Z=</td>
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<tr>
<td>PHF *qasel</td>
<td>pestle</td>
<td>TOOL</td>
<td>Bl-Ch, Ts, ZED</td>
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<td>PM1 *qata</td>
<td>alien person; slave [cf: *qaRta]</td>
<td>WAR</td>
<td>Bl-PA1</td>
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<td>PAN *qateluR</td>
<td>egg [cf: *teluR]</td>
<td>FOOD, FOWL</td>
<td>Bl-VRR</td>
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<tr>
<td>PM1 *qatēp</td>
<td>thatch roof (usually sago leaf)</td>
<td>BLDG</td>
<td>Dp, Bl-Ch, Noth</td>
</tr>
<tr>
<td>PHF *qatīmela</td>
<td>fish: big-eyed scad</td>
<td>INSECT</td>
<td>Ts, Bl-AE1, Z=</td>
</tr>
<tr>
<td>PM1 *qatulay</td>
<td>fish: big-eyed scad</td>
<td>FISH</td>
<td>Bl-Hm</td>
</tr>
<tr>
<td>PM1 *qatun</td>
<td>fish: tuna, bonito</td>
<td>FISH</td>
<td>Bl-Hm</td>
</tr>
<tr>
<td>PAN *qaru</td>
<td>bamboo, <em>Bambusa</em> sp.</td>
<td>FLORA</td>
<td>Hk, Dy, Bl-Hm, Ts</td>
</tr>
<tr>
<td>PM1 *qawa?</td>
<td>fish: milkfish, <em>Chanos chanos</em></td>
<td>FISH</td>
<td>Bl-AE1, Hm</td>
</tr>
<tr>
<td>PHF *qayam</td>
<td>domestic animal: dog, chicken</td>
<td>BIRD</td>
<td>Dp, Bl-Hm, Ts, Z=</td>
</tr>
<tr>
<td>PHF *qayām</td>
<td>play [verbal inflection: *qayam-ēn]</td>
<td>Play</td>
<td>Dp, Z=</td>
</tr>
<tr>
<td>PM1 *qayu</td>
<td>crab – coconut</td>
<td>SEA</td>
<td>Bl-Hm</td>
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<tr>
<td>PHF *qēbēl</td>
<td>smoke</td>
<td>COOK</td>
<td>Ts, Z=</td>
</tr>
<tr>
<td>PSP *qebūh</td>
<td>cough</td>
<td>SICK</td>
<td>Z=</td>
</tr>
<tr>
<td>PHF *qēCā</td>
<td>bran, chaff, rice-husk</td>
<td>FARM, RICE</td>
<td>Bl-Hm, Z=</td>
</tr>
<tr>
<td>PHF *qēCuR</td>
<td>erection</td>
<td>BIRD</td>
<td>Bl-AE3</td>
</tr>
<tr>
<td>PHN *qē(n)+dem</td>
<td>brood (of a hen)</td>
<td>BIRD</td>
<td>Bl-AE4</td>
</tr>
<tr>
<td>PHF *qekūn</td>
<td>owl</td>
<td>BIRD</td>
<td>Dp, Bl-AE4</td>
</tr>
<tr>
<td>PM1 *qelad</td>
<td>wing</td>
<td>BLDG</td>
<td>Dp, Ts</td>
</tr>
<tr>
<td>PM1 *qelud</td>
<td>pillar</td>
<td>BLDG</td>
<td>Bl-AE3</td>
</tr>
<tr>
<td>PM1 *qem+peŋ</td>
<td>weir, impede, obstruct, restrain</td>
<td>FISH</td>
<td>Dy, Bl-AE3</td>
</tr>
<tr>
<td>PAN *qēnay</td>
<td>sand</td>
<td>NATR</td>
<td>Bl-PA3, Hm, Ts</td>
</tr>
<tr>
<td>PHF *qē+Neb</td>
<td>doorway; close door [cf: *qēNeb]</td>
<td>BLDG</td>
<td>Ts, Bl-AE4</td>
</tr>
<tr>
<td>PHN *qepah</td>
<td>bran, chaff, rice-husk</td>
<td>FARM, RICE</td>
<td>Dp, Ch, ZED</td>
</tr>
<tr>
<td>PAN *qēCelR</td>
<td>egg</td>
<td>FOOD, FOWL</td>
<td>Dp, Dy, Ts, ZED</td>
</tr>
<tr>
<td>PHN *qē(n)+dem</td>
<td>dark, black; obscured</td>
<td>COLOUR</td>
<td>Bl-AE3</td>
</tr>
<tr>
<td>PAN? *qilaŋ/ma-</td>
<td>dirty</td>
<td>GROOM</td>
<td>Bl-VRR</td>
</tr>
<tr>
<td>PM1 *qilih</td>
<td>mountain range</td>
<td>GEOG</td>
<td>Bl-Hm</td>
</tr>
<tr>
<td>PPH *qincip-</td>
<td>heat of the sun; sun</td>
<td>NATR</td>
<td>Z=</td>
</tr>
<tr>
<td>PHF *qi+Neb</td>
<td>close (door)</td>
<td>BLDG</td>
<td>Bl-AE4</td>
</tr>
<tr>
<td>PM1 *qipil</td>
<td>tree, <em>Intisia bijuga</em></td>
<td>FLORA</td>
<td>Bl-Hm, Dp, Dy, Z=</td>
</tr>
<tr>
<td>PHN *qiris</td>
<td>slice, dice, cut fine</td>
<td>FOOD</td>
<td>Dp, Dy, Z=</td>
</tr>
<tr>
<td>PAN *qisl</td>
<td>fish: shark</td>
<td>FISH</td>
<td>Hk, Bl-Hm, Dy, Z=</td>
</tr>
<tr>
<td>PAN? *qitēm/ma-</td>
<td>black</td>
<td>COLOUR</td>
<td>Dp, Bl-PAA, Z=</td>
</tr>
<tr>
<td>PM1 *qin̓tuŋ</td>
<td>count</td>
<td>NUM, BART</td>
<td>Dp, Dy, ZED</td>
</tr>
<tr>
<td>PHF *qūt</td>
<td>sexual intercourse</td>
<td>SEX</td>
<td>Bl-AE4, Z=</td>
</tr>
<tr>
<td>PAN *quāy</td>
<td>rattan (generic?)</td>
<td>FLORA</td>
<td>Dp, Bl-Hm, Z</td>
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<tr>
<td>PHF *qubeq</td>
<td>pigpen</td>
<td>FARM</td>
<td>Ts</td>
</tr>
<tr>
<td>PM1 *qū(m)bi</td>
<td>yam, tuber <em>Dioscorea alata</em></td>
<td>FOOD</td>
<td>Hk, Bl-Ch, Hm</td>
</tr>
<tr>
<td>PAN</td>
<td>*sa-</td>
<td>one [unit of 10, 100, 1000]</td>
<td>19. NUM</td>
</tr>
<tr>
<td>PHN</td>
<td>*sab?a</td>
<td>banana, plantain</td>
<td>5.3</td>
</tr>
<tr>
<td>PHN</td>
<td>*sa(m)háw</td>
<td>soup, broth</td>
<td>9.3</td>
</tr>
<tr>
<td>PHN</td>
<td>*sá(m)+beR</td>
<td>sow, scatter, broadcast seed</td>
<td>5.3</td>
</tr>
<tr>
<td>PHN?</td>
<td>*sábuŋ</td>
<td>cockfight</td>
<td>27.</td>
</tr>
<tr>
<td>PHN</td>
<td>*sa(m)+buR</td>
<td>sow, scatter, broadcast seed</td>
<td>5.3</td>
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<tr>
<td>PSP</td>
<td>*sa?eR</td>
<td>floor</td>
<td>12.3</td>
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<tr>
<td>PMP</td>
<td>*saet</td>
<td>spear [n / v]</td>
<td>8.2</td>
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<td>PNP</td>
<td>*s/aglay+say</td>
<td>comb</td>
<td>24.</td>
</tr>
<tr>
<td>PPH</td>
<td>*sa(e)geb</td>
<td>fetch water</td>
<td>9.4</td>
</tr>
<tr>
<td>PMP</td>
<td>*saguh</td>
<td>sago</td>
<td>5.2</td>
</tr>
<tr>
<td>PMP</td>
<td>*sakáy</td>
<td>ride, board</td>
<td>2.2</td>
</tr>
<tr>
<td>PPH</td>
<td>*sak(e)du</td>
<td>fetch water</td>
<td>9.4</td>
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<tr>
<td>PMP</td>
<td>*sakít / ma-</td>
<td>be in pain; be sick</td>
<td>25.2</td>
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<tr>
<td>PMP</td>
<td>*saku-layaR</td>
<td>sailfish</td>
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<tr>
<td>PPHF?</td>
<td>*salajeŋ</td>
<td>male of ruminants; buck deer</td>
<td>6.1</td>
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<tr>
<td>PHN</td>
<td>*salambaw</td>
<td>fishnet – large</td>
<td>3.3</td>
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<tr>
<td>PHN</td>
<td>*salapa?</td>
<td>betel nut case or box</td>
<td>28.</td>
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<tr>
<td>PAN</td>
<td>*saláq</td>
<td>sin, error, mistake</td>
<td>21.</td>
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<tr>
<td>PHN</td>
<td>*salátan</td>
<td>south wind</td>
<td>1.4</td>
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<tr>
<td>PHF</td>
<td>*sáleŋ</td>
<td>pine tree, <em>Pinus</em> sp.</td>
<td>4.1</td>
</tr>
<tr>
<td>PHF</td>
<td>*sáleŋ</td>
<td>resin [cf: PAN *damaR]</td>
<td>8.</td>
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<tr>
<td>PHN?</td>
<td>*saléR</td>
<td>floor slats</td>
<td>12.3</td>
</tr>
<tr>
<td>PMP?</td>
<td>*sa+hir</td>
<td>flow, current</td>
<td>1.3</td>
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<tr>
<td>PHF</td>
<td>*sáliw</td>
<td>buy, sell; exchange [cf: * ámbliw]</td>
<td>18.</td>
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<tr>
<td>PHN</td>
<td>*sal+,sal</td>
<td>blacksmithing [cf: *cal+cal hammer]</td>
<td>1.4</td>
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<tr>
<td>PHN</td>
<td>*saluR</td>
<td>flow</td>
<td>4.3</td>
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<td>PHN</td>
<td>*samun</td>
<td>undergrowth</td>
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<td>PHN</td>
<td>*sanak</td>
<td>to have many children</td>
<td>20.3</td>
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<tr>
<td>PHN</td>
<td>*sá-ša-</td>
<td>one [unit of 10, 100, 1000]</td>
<td>19.4</td>
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<td>PMP</td>
<td>*sá+káh</td>
<td>fork of a branch, bifurcation</td>
<td>4.2</td>
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<td>PMP</td>
<td>*sapa+saga</td>
<td>starfish</td>
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<td>PHF</td>
<td>*sá+paw</td>
<td>field hut (roofed structure)</td>
<td>12.1</td>
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<td>PMP</td>
<td>*sapu</td>
<td>broom</td>
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<td>PMP?</td>
<td>*sa+puk</td>
<td>dust</td>
<td>1.3</td>
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<tr>
<td>PHF</td>
<td>*saq+saq</td>
<td>split bamboo</td>
<td>12.1</td>
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<tr>
<td>PMP</td>
<td>*saruk</td>
<td>fish net</td>
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<td>PPH</td>
<td>*saRij</td>
<td>banana</td>
<td>5.</td>
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<td>PMP</td>
<td>*saRman</td>
<td>outrigger</td>
<td>2.2</td>
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<tr>
<td>PHN</td>
<td>*saRu</td>
<td>body fluid from a corpse</td>
<td>23.</td>
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<tr>
<td>PMP</td>
<td>*saRu</td>
<td>comb</td>
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<tr>
<td>PMP</td>
<td>*saRup</td>
<td>sing in unison</td>
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<tr>
<td>PPH</td>
<td>*sa-siám</td>
<td>nine</td>
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<tr>
<td>PMP</td>
<td>*saut</td>
<td>comb [dbl: suat]</td>
<td>6.2</td>
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<tr>
<td>PMP?</td>
<td>*sawáh</td>
<td>snake, python</td>
<td>1.3</td>
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<tr>
<td>PHN</td>
<td>*sawaq</td>
<td>channel</td>
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<td>PHN</td>
<td>*sayad</td>
<td>slice</td>
<td>7.1</td>
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<tr>
<td>PHN?</td>
<td>*sayap</td>
<td>fly [v]; wing</td>
<td>27.</td>
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<tr>
<td>PHN</td>
<td>*sáyaw</td>
<td>dance</td>
<td>18.</td>
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<tr>
<td>PMP</td>
<td>*sebüh</td>
<td>temper metals [water-heat meet]</td>
<td>9.4</td>
</tr>
<tr>
<td>PHN</td>
<td>*sedosed</td>
<td>grass or rush sp.</td>
<td>4.3</td>
</tr>
<tr>
<td>PAN</td>
<td>*se(n)+du?</td>
<td>hiccough</td>
<td>25.</td>
</tr>
<tr>
<td>PMP</td>
<td>*se(g)+ger</td>
<td>healthy, feel fit</td>
<td>25.2</td>
</tr>
<tr>
<td>PHN</td>
<td>*séjém</td>
<td>ant</td>
<td>10.3</td>
</tr>
<tr>
<td>PHF</td>
<td>*Sa(n)tet2 convey, escort; give</td>
<td>21. CULT,MOVE Dp,Dy,Z=</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*Sēmay rice (generic): unhusked – cooked</td>
<td>5.1 RICE Bl-CH,Hm,ZED</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*Sē+ñāw wash, rinse</td>
<td>24. GROOM Ch,Ts</td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*Sē(m)pāt four</td>
<td>19. NUM Dp,Dy,Ts,ZED</td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*Ses meat, flesh; contents</td>
<td>9. FOOD Bl-VRR,Ts</td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*Siáq/-ma ashamed, lost face [cf: PSP *heyaq]</td>
<td>21. CULT Z=,Bl-AE1</td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*Si-ka?en fish</td>
<td>3. FISH,FOOD Dp,ZED,BI-pc</td>
<td></td>
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<tr>
<td>PHF</td>
<td>*Sikām mat</td>
<td>13. BRAID Z=,Ts</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*SiðmaR grease, fat</td>
<td>9.1 FOOD Ts,BI-AE1</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*Si(m)pār opposite shore</td>
<td>1.2 NATR Ts,Z=</td>
<td></td>
</tr>
<tr>
<td>PAN?</td>
<td>*Sisi meat, flesh; contents</td>
<td>9. FOOD,HUNT Dp,Dy</td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*Suai mango, Mangifera indica [PMP *wai]</td>
<td>4. FLORA Bl-AE3,Ts</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*Sūlj sleep together/with</td>
<td>27. SEX Z=</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*Sūm[ay] rice (generic) [dbl: *Hemay]</td>
<td>5.1 RICE Dy-HM</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*Sū/Ras wash, rinse</td>
<td>24. GROOM Dp,Ts,Z=</td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*ta+bas cut away underbrush</td>
<td>5.3 FARM Bl-AE3</td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*ta+bas fat</td>
<td>9.3 FOOD,PROP Dp,Ts,Z=</td>
<td></td>
</tr>
<tr>
<td>PPN</td>
<td>*tabu? fat</td>
<td>22. RITE Walsh &amp; Biggs</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tā+bun cover; fill</td>
<td>5.2 FARM Bl-PA2,Dp,Z=</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tada natural cockspur</td>
<td>27. COCK Bl-AE3</td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*ta?eb high tide</td>
<td>1.4 NATR Z=,Bl-AE3</td>
<td></td>
</tr>
<tr>
<td>PSP</td>
<td>*ta(e)nek mosquito</td>
<td>10.4 INSECT Z=</td>
<td></td>
</tr>
<tr>
<td>PPH</td>
<td>*ta+jip cut, pare</td>
<td>9.3 FOOD,PROD Ch,Z=</td>
<td></td>
</tr>
<tr>
<td>PPHF</td>
<td>*ta+kid adhere, stick (to)</td>
<td>12. BLDG,PROD Ts</td>
<td></td>
</tr>
<tr>
<td>PPH</td>
<td>*ta+kip join (together)</td>
<td>12.2 BLDG Z=</td>
<td></td>
</tr>
<tr>
<td>PPH</td>
<td>*talbā oyster</td>
<td>3.4 SEA Z=</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*taLam taste [alt: *taNam]</td>
<td>9.1 FLAV Ts</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*talaj/man-morning/evening star (Venus)</td>
<td>1.3 NATR Bl-AE2,Dp</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tales taro, Colocasia sp.</td>
<td>5.2 FARM,FOOD HK,Bl-CH,Hm</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*talisay tree, Terminalia catappa</td>
<td>4.2 FLORA ZED,Bl-Hm</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*taluk young plant shoot</td>
<td>4.2 FLORA Bl-AE3</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*taluki fabric</td>
<td>16. CLOTH Bl-AE3</td>
<td></td>
</tr>
<tr>
<td>PAN</td>
<td>*tama father</td>
<td>20. KIN Bl-Voc</td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*tama? hit the target</td>
<td>8.3 HUNT,WAR Dp,Z=</td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*tamadaw wild ruminant sp.</td>
<td>6.3 FAUNA Bl-AE3</td>
<td></td>
</tr>
<tr>
<td>PHN?</td>
<td>*tambar medicine, poultice</td>
<td>25.3 SICK Dp,Z=</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tam-būRi shell: conch; trumpet [cf: *buliq]</td>
<td>3.2 SEA Bl-CH,Hm,Dy,Z=</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tamian bamboo, Schizostachyum sp.</td>
<td>4.2 FLORA Bl-AE3,Hm</td>
<td></td>
</tr>
<tr>
<td>PPH</td>
<td>*tamāj shield – round [cf: *kalasag]</td>
<td>26. WAR Bl-AE1</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tam-?/mis sweet</td>
<td>9.3 FLAV Ts,Z=</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tanaq soil, earth, ground, land</td>
<td>5.2 FARM Dp,Dy</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tanduk-2 plant sp.</td>
<td>4.3 FLORA Bl-AE3</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*taneq earth, soil, ground, land</td>
<td>5.2 FARM ZED,Dy</td>
<td></td>
</tr>
<tr>
<td>PPH</td>
<td>*tanud thread; needle</td>
<td>15. SEW Z=</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*taNam taste [alt: *taLam]</td>
<td>9.1 FLAV DyTs</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*taNeK cook</td>
<td>9.1 FOOD Z=,Bl-AE1,VRR</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*taNek plant, Millingtonia hortensis</td>
<td>4.2 FLORA Bl-Hm</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tanga plant, Spanish mackerel</td>
<td>3.2 FISH Dp,BI-Hm,ZED</td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*tāpay yeast, rice wine</td>
<td>28. GROG Dp,Noth,Z=</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*tapeS winnow</td>
<td>5. FARM Bl-CH,ZED,Ts</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*tapis skirt, sarong, apron</td>
<td>16. CLOTH Bl-AE3,Ts</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*tāpiS skirt, cloth</td>
<td>16. CLOTH Ts</td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>*ta(m)pu ancestor</td>
<td>20. KIN Bl-Voc</td>
<td></td>
</tr>
<tr>
<td>PHF</td>
<td>*taqēn trap, snare; restrain; endure</td>
<td>8.1 HUNT Bl-PA3,Noth,Z=</td>
<td></td>
</tr>
<tr>
<td>PHN</td>
<td>*taRabas plant sp., with ceremonial uses</td>
<td>4.3 FLORA Bl-AE3</td>
<td></td>
</tr>
</tbody>
</table>
PAN *taRág hew, plane (with adze); cut, hack
PMP *taRaqan fish: squirrelfish
PPH *taKenek mosquito
PHN *taKum tree, *Indigofera
PAN? *taSuq hide
PMP *taRutuq fish: puffer, porcupinefish
PAN *ta-sa one
PMP *tasik saltwater; sea, ocean
PAN *taSép winnow
PHF *ta-télú three
PMP *táu-matáq person [cf: PAN *Cáu]
PHN *táwad2 discount, reduced price
PHN *tawas alum
PHN *tawas alum
PHN? *tázi artificial cockspur; cockfight
PHN *tebá? cutdown/off
PHN *teba cut away, clear vegetation
PMP *tebék pierce, stab
PHN *tebég fell, topple
PHN *teb+téb cut off, prune; cut down
PHN *tebús redénm
PAN *tebúS sugarsnake
PHF *teda? leftovers; remainder
PHN *tedés crush with the thumbnail (as lice)
PHN *tedís crush with the thumbnail
PHN *te(n)+duk skewer, pierce [cf: PMP *tuduk]
PHN *te(n)ger stubborn, obstinate, unyielding
PHN *tek mud
PMP *tekén punt, boat punting pole
PAN *tek+tek cut, hack
PHN *teRág loom
PMP *telem sink, disappear under water
PAN *teRág three
PMP *télú egg
PHF *te+neb submerge
PMP *tem tree, *Melochia umbellata
PHF *tenun-an loom
PMP *teRág mangrove tree, *Ceriops
PHN *tepá mat, woven material
PMP *tepíR mat [pos: *tipeR]
PAN *teq sap, gummy secretion, viscous fluid
PAN *ter shiver, tremble
PMP *terg bamboo sp.
PHN? *terúŋ eggplant
PMP *teRas tree, *Intsia bijuga (?)
PMP *teRep breadfruit, *Artocarpus sp.
PHN *tey+téy suspension bridge; [CCr] ladder
PMP *te+zék erect, upright
PMP *ti+Dem dark, obscure; black
PHN *tidús spoon, ladle
PSP *ti+lád prepared betel chew mixture
PHN *ti+lém dark, black
PMP *tilu earwax
PHN *timeRág lead; tin
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PMP *timun melon; cucumber 5.2 FARM, FOOD HK, BL-CH, Hm
PAN? *timuR rain wind: S/E 1.1 NATR BL-Hm, ZED
PHF *timus salt 9.1 FOOD BL-VRR, Dy
PAN *tina mother 20. KIN BL-Voc
PHF *tine'un weave (cloth) [cf: *tenun] 14. WEAV BL-CH, Ts, ZED
PHF *tigaS particles of food stuck in teeth 24. GROOM Ts, Z=
PPH *tigen look for, hunt out 8.4 HUNT Z=
PAN *tip+tip suck 9. FOOD, MOVE BL-VRR
PMP *tiqaIJ pilla r, post; mast 2.2 BOAT, BLDG Dy, ZED
PMP *tir shiver, tremble, quiver 25. SICK BI-Root
PMP *tiRem oyster 3.2 SEA Dy, BL-Hm, ZED
PHN *tu?aW bird and its cry 7.3 BIRD BI-AE3
PHN *tuaD2 fish net or trap 3.3. FISH BI-AE3
PMP *tua(n)ji sibling - younger 20. KIN BI-Voc
PAN *tub+tuq drip, leak 1.1 NATR Dp, Dy, Ts
PHN *tub+tuq hammer, pound; crush 12. MOVE BI-AE3
PAN *tuka+tuq light, kindle, set fire to, burn 5.2 FARM, COOK BI-VRR, Dy
PWI *tuzaQ light, kindle, set fire to, burn 19.4 NUM BI-NS
PMP *tulat scar [db!: *kulad] 6. FAUNA, REPT Dp, Dy
PHF *tuq+tuq seven 19.4 NUM BI-NS
PHF *tulat scar [db!: *kulad] 2.3 BOAT Z=
PHN *u+ahik bring up (e.g. boat to shore) 25.3 SICK BI-AE3, Z=
PHF *udd?] medicine; charm 25.3 SICK Z=
PMP *uRuk custom, tradition 21.3 CULT BI-AE3
PAN *uRuk custom, tradition 21.3 CULT BI-AE3, Z=
PMP *upas poison(ous) 26. WAR BI-AE3
PHF *uReIJ hom [Iv *UTUIJ] 6.1 FAUNA BI-LVWL
PHN *uRsa deer [dbl: *Rusa]
PHP *ũšãg charcoal
PHN *ũšir̥ pursue, chase
PAN *ušaj[H] younger sibling; kinsman
PPH *ũ+wák crow [PMP 'harsh - loud cry']
PMP *wahiR fresh water
PMP *wai mango sp. [cf: PAN *Suai]
PMP *wakaR root
PHF *wak+wak caw, crow [cf: PPH *ũ+wák]
PAN *walū eight
PMP *waŋkaŋ canoe
PMP *waNuH honeybee [cf: PMP *wañi]
PMP *wañi honeybee [cf: PPM *waNuH]
PMP *waRej vine, aerial root [cf: Rawej]
PMP *waRet root
PAN *wiRîH sun
PHP *wiNay adze, axe
PHF *wa-walū eight
PMP *wi hook (shaped)
PHN *za(j)+kit contagious, spreading by contact
PMP *zelateg stinging nettle, Laportea sp.
PHN *za+paw insect destructive to rice
PMP *zęqit sew, patch up (clothing)
PMP *zęriŋ snare
PHF *zęwah millet, Setaria italica
PHN *zung̥ carry around (items for sale)
PHN *zung̥̥ cross-eyed [dbl: *zuliŋ]
PHN *ziqẽ vine from which poison is obtained
PHN *zuliŋ cross-eyed
PHN *ziuŋ prow, bow
PMP *ZaKan cook
PAN *Ziļan path, trail
PHF *ZuRāmi rice straw, stubble
PAN *ZiRum needle
PMP *ZuRuq sap, syrup

6.2 FAUNA
6.2 FAUNA
9. PROD
26. WAR
20. KIN
7.2 BIRD
1.3 NATR
4. FLORA
4.2 FLORA
4.2 FLORA
7.2 BIRD
19. NUM
2.2. BOAT
11. BEE
11. BEE
4.2 FLORA
4.2 FLORA
12.2 BLDG, TOOL
19.1 NUM
3.2 FISH, TOOL
25.3 SICK
4.2 FLORA
10.3 INSECT
15. SEW
8.2 HUNT
5.1 FARM, FOOD
19.3 BART
25.3 SICK
4.3 FLORA
25.3 SICK
2.3 BOAT
9.2 FOOD
1.1 GEOG
5.1 FARM, RICE
15. SEW
4.2 FLORA, PROD

Bl-PAA, Z=
Z=
Dp, Z=
Z=, Bl-Voc, SOC
Z=, Bl-ACD
Dp, ZED, Bl-ACD
Bl-Hm, ACD
Bl- VRR, ACD
Bl- VRR, ACD
Bl-ACD, Z=
Dp, Da, Ts, ZED
Bl-CH, ZED
Dp, Z=
Bl-AE3
Bl-AE3#434n
Bl-AE3
Ts, Dp
ZED
Z=, Bl-ACD
Bl-Root, Z=
Bl-AE3
HK, Dp, Bl-Hm
Bl-AE3
Bl-CH, ZED, Dp
Bl-CH, ZED
Bl-CH, ZED
Bl-CH, ZED
Bl-CH, ZED
Z=
Bl-AE3
Bl-AE3
Bl-AE3#439
ZED
Bl- VRR
Dp, Dv, Bl-CH, Z=
Dp, Z=

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JPH   The Journal of Pacific History. Australian National University, Canberra.
OLM   Oceanica Linguistic Monographs. University of Sydney.
PL    Pacific Linguistics. Department of Linguistics, Research School of Pacific and Asian Studies, Australian National University, Canberra.

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